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*Assessing the Structure and Mix
of Future Active and Reserve
Forces: Final Report to
the Secretary of Defense*

National Defense Research Institute

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of Future Active and Reserve
Forces: Final Report to
the Secretary of Defense*

National Defense Research Institute

Prepared for the
Office of the Secretary of Defense

ASSESSING THE STRUCTURE AND MIX OF FUTURE ACTIVE AND RESERVE FORCES

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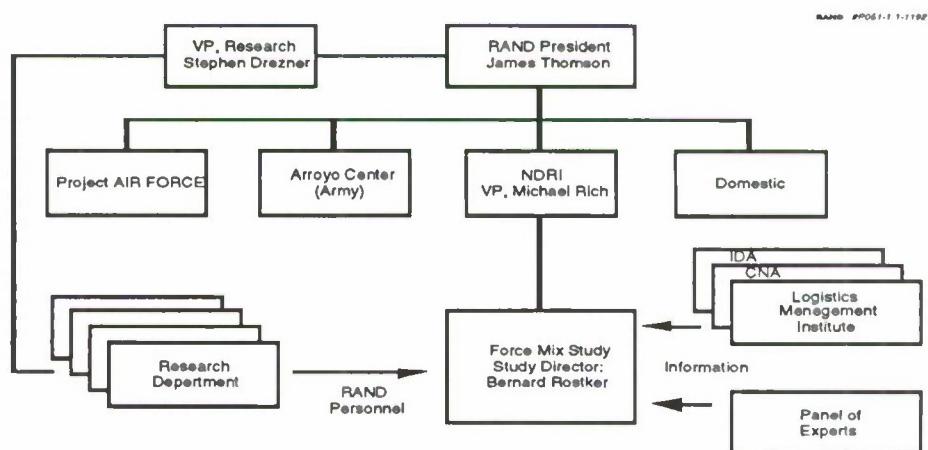
Preface

The National Defense Authorization Act for Fiscal Years 1992 and 1993 required that the Secretary of Defense submit to Congress "an assessment of a wide range of alternatives relating to the structure and mix of active and reserve forces appropriate for carrying out assigned missions in the mid- to late-1990s." The act specified that the first part of the study be conducted by a federally funded research and development center (FFRDC) that is independent of the military departments. RAND's National Defense Research Institute (NDRI) was selected to conduct the assessment. NDRI is an FFRDC sponsored by the Office of the Secretary of Defense (OSD) and the Joint Staff.

As required by Section 402 of the act, the objective of the NDRI effort is to assess how alternative force mixes and structures would affect the U.S. military forces' ability to meet national military requirements under projected budget constraints. Congress asked that the Secretary of Defense and the Chairman of the Joint Chiefs of Staff then "determine, on the basis of the evaluation, the mix or mixes of reserve and active forces included in the independent study that are considered acceptable to carry out expected military missions."

Management of the Effort

The figure below shows how NDRI managed the study.



RAND's National Defense Research Institute

RAND is a private, nonprofit institution engaged in research and analysis of matters affecting national security and the public welfare. It operates three federally funded research and development centers in defense research. They provide ongoing technical and policy analysis to the Department of Defense (DoD), under special oversight arrangements. The oldest Service-sponsored FFRDC is Project AIR FORCE, which was created in 1946. The Arroyo Center, the Army's FFRDC for studies and analysis, has been at RAND since 1984. NDRI is RAND's third FFRDC, created in 1984. Members of the RAND research staff are housed in five research departments. The force mix study director reported directly to the Director of the NDRI, a RAND Vice President. Additional oversight was provided by the Chairman of RAND's Research Operations Group, also a RAND Vice President.

The staff of the NDRI study team was drawn from a number of research departments at RAND. In addition, several concurrent studies were under way in the Arroyo Center where staff adjusted their schedules to provide important analysis of several critical issues, particularly an assessment of post-mobilization training required by roundout brigades. In addition, with the approval of the Army, Arroyo Center staff shared with the NDRI study team a number of computer models and data bases. Project AIR FORCE also shared the findings from a recently completed base force analysis.

Support from Other FFRDCs

NDRI was supported in this study by other, non-RAND, FFRDCs: the Logistics Management Institute, the Center for Naval Analyses, and the Institute for Defense Analyses.

The Logistics Management Institute (LMI), like NDRI, is an FFRDC chartered to support the Office of the Secretary of Defense. Under separate contract with OSD, LMI was fully engaged with the NDRI study team in the design of alternative Army force structures.

The Center for Naval Analyses (CNA) also was under separate contract with the Office of the Secretary of Defense to perform a parallel analysis for the Navy and Marine Corps forces. CNA developed the specific Navy and Marine Corps alternatives presented in Chapter 10.

The Institute for Defense Analyses (IDA) is also an FFRDC that supports the Office of the Secretary of Defense and that had a separate contract with OSD

to support this study effort. IDA assessed the feasibility of the Unit Cohesion Model, identified specific changes that would be needed to implement it, and assessed how simulators might be used in the future to enhance reserve component training.

Panel of Experts

Section 402 of the Authorization Act required that “[t]he study group shall be assisted by a panel of experts who, by reason of their background experience, and knowledge, are particularly qualified in the areas covered by the study.” The panel of experts was selected by NDRI in consultation with the sponsoring officials in the Office of the Secretary of Defense. The following individuals served on the panel:

- Admiral Harry Train, USN (Ret),
- General Maxwell Thurman, USA (Ret),
- General Robert Bazley, USAF (Ret),
- General Joseph Went, USMC (Ret),
- Major General L. H. Ginn, USAR (Ret), and
- Major General Greg Barlow, ARNG, The Adjutant General of the State of Washington.

Structure of the Study

For the assessment, the congressional mandate specified a number of key issues in three broad areas: evaluating past policies and practices related to the mix and structure of active and reserve forces; defining alternative mixes and structures; and evaluating those alternatives.

This report presents the findings and conclusions of the study. Several of the chapters synthesize research that is more completely described in separate publications:

Marygail Brauner, Harry Thie, and Roger Brown, *Assessing the Structure and Mix of Future Active and Reserve Forces: Effectiveness of Total Force Policy in the Persian Gulf Conflict*, RAND, MR-132-OSD, 1992;

Leslie Lewis, C. Robert Roll, and John D. Mayer, *Assessing the Structure and Mix of Future Active and Reserve Forces: Assessment of Policies and Practices for Implementing the Total Force Policy*, RAND, MR-133-OSD, 1992;

Adele R. Palmer, James H. Bigelow, Joseph G. Bolten, Jennifer H. Kawata, H. Garrison Massey, Robert L. Petruschell, and Michael G. Shanley, *Assessing the Structure and Mix of Future Active and Reserve Forces: Cost Estimation Methodology*, RAND, MR-134-OSD, 1992;

National Defense Research Institute, *Assessing the Structure and Mix of Future Active and Reserve Forces: Annex* (U), RAND, MR-140/1, December 1992 (SECRET);

Colin O. Halvorson and Norman T. O'Meara, *Force Structure Design Methodology*, Logistics Management Institute, forthcoming;

H. Dwight Lyons, Jr., William H. Sims, and John D. Goetke, *USMC Active and Reserve Force Structure and Mix Study*, vols. 1-5, Center for Naval Analyses, Alexandria, Virginia, 1992;

John D. Mayer, James M. Jondrow, John V. Hall, Burnham C. McCaffree, and Ronald Rost, *Navy Active and Reserve Force Structure and Mix Study*, Center for Naval Analyses, Alexandria, Virginia, 1992;

John Tillson, Stan Horowitz, Merle Roberson, and Steven L. Canby, *Alternative Approaches to Organizing, Training, and Assessing Army and Marine Corps Units*, Institute for Defense Analyses, P-2791, December 1992.

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Summary

Since the founding of the republic, the legislative and executive branches have been debating the appropriate structure and mix of active and reserve military forces. This study is the most recent of many studies the debate has generated. In Section 402 of the National Defense Authorization Act for Fiscal Years 1992 and 1993, Congress mandated that this study provide "comprehensive analytic information" that will allow the Secretary of Defense and the Chairman of the Joint Chiefs of Staff to evaluate the "mix or mixes of reserve and active forces . . . that are considered acceptable to carry out expected future military operations." The legislation specified key elements to be studied:

- Existing policies and practices for implementing Total Force Policy.
- The effectiveness of Total Force Policy and practices during the Persian Gulf conflict.
- A range of possible mixes of active and reserve forces, assuming a range of manning and funding levels, including all active and reserve component missions, *with particular emphasis on missions carried out by land forces*, and estimating the costs associated with alternative active and reserve force mixes and structures.

The legislation highlighted key dimensions of alternative force structures to be considered, including:

- The ability of alternative force structures to prosecute military operations.
- The time required to prepare forces for combat.
- The cost of training and maintaining forces in peacetime.
- The sustainability of reserve recruiting and retention.

This summary provides a brief description of the past policies and practices under Total Force Policy, our approach to the central task of designing and evaluating alternative force structures, and the implications of our results.

Past Policies and Practices Under Total Force Policies

In 1970, with the end of the Vietnam War in sight, and in order to "reduce expenditures," Secretary of Defense Melvin Laird ordered "reductions in overall strengths and capabilities of the active forces, and increased reliance on the combat and combat support units of the Guard and Reserves."¹ He proposed a new "*Total Force Concept* . . . be applied in all aspects of planning, programming, manning, equipping and employment of Guard and Reserve Forces."² In 1973, Secretary of Defense James Schlesinger told the military departments, "The Total Force is no longer a 'concept.' It is now the Total Force Policy which *integrates* the Active, Guard and Reserve forces into a homogenous whole."³

What Is Total Force Policy?

The two tenets of Total Force Policy most often cited in official Department of Defense (DoD) publications are (1) reliance on reserve forces as the primary augmentation for the active forces and (2) integrated use of all available personnel—active, reserve, civilian, and allied.⁴ The DoD has provided an operational definition of the Total Force Policy that was cited by the Senate Armed Services Committee:

It is DoD policy to place maximum reliance on Guard and Reserve units and manpower. We use active units and manpower to support scheduled overseas deployment or sea duty, training requirements, and to support the rotation base. Above that level, we plan to support military contingencies with Guard and Reserve units and manpower when they can be available and ready within planned deployment schedules on a cost effective basis.⁵

¹Secretary of Defense Melvin Laird, *Support for Guard and Reserve Forces*, Department of Defense Memorandum, August 21, 1970.

²*Ibid.*

³Secretary of Defense James R. Schlesinger, Department of Defense Memorandum, August 23, 1973.

⁴DoD, *Total Force Policy Report to the Congress*, December 1990, p. 13.

⁵Cited in National Defense Authorization Act for Fiscal Years 1992 and 1993, Report 102-114, U.S. Senate Committee on Armed Services, p. 202. This is consistent with Assistant Secretary of Defense (Reserve Affairs) Stephen Duncan's "rebuttable presumption" that all forces should be in the reserve component unless there is a specific justification for them to be in the active component.

However, several of the military service organizations and many in Congress⁶ believe there should be a third tenet requiring early deployment of reserve units. In their view, the Army, in particular, should be structured to make active and reserve units so interdependent that a president could not send military forces to combat without activating the reserves.⁷ For the development of force structures, this tenet intensifies concerns about the availability and combat readiness of reserve forces. Part of the study's mandate was to see how effective Total Force Policy was in the Persian Gulf War, and we focused our evaluation on the availability and readiness of reserve forces.

How Effective Was Total Force Policy in the Persian Gulf War?

In addressing the effectiveness of Total Force Policy in the Persian Gulf conflict, we are aware that any conclusions and lessons for future planning must be moderated by the unique circumstances of that conflict. The United States had a robust military force, and many of the combat and support formations used in the Persian Gulf came from forward-deployed active forces at high states of readiness. Moreover, the United States was allowed to build up forces over a substantial period; it was able to use the existing infrastructure in Saudi Arabia; and the ground war was very short. That said, we can draw the following general conclusions.

The operational definition quoted above emphasizes that use of reserve forces to support military contingencies depends on their being available and ready "within planned deployment schedules on a cost effective basis." Judged by that criterion, the effectiveness of Total Force Policy was mixed.

In general, the reserves were available and reported promptly when called during Operation Desert Shield/Storm (ODS/S). Further, the reserve combat support and combat service support (CS/CSS) units required relatively little post-mobilization training to be ready for deployment. However, the Army National Guard combat units apparently were not as ready as prior reporting indicated. When the deployment standard for active and reserve combat units was changed for ODS/S, it took longer than expected to train the National Guard combat units up to that standard.

⁶See: Hearings before the Manpower and Personnel Subcommittee of the Senate Armed Services Committee, April 8, 1992.

⁷See: Lewis Sorley, "Creighton Abrams and the Active-Reserve Integration in Wartime," *Parameters*, Summer 1991.

For the Air Force, Navy, and Marine Corps reserve components, both the support and combat units mobilized and were ready well within expected times. The reasons why their combat readiness generally met expectations were very instructive for considering possible changes in active and reserve missions, training practices, and organizational structure, as we designed alternative force structures.

Policies and Practices for Implementing Total Force Policy

Members of Congress and the reserve community have been concerned that total force options are not well incorporated into DoD's decisionmaking process. Part of our mandate was to assess existing policies and practices for implementing Total Force Policy. To do this, we studied the *process* through which the Base Force was developed during the critical period from 1989 through 1991.

Our approach was a case study of the process, aimed at answering the following questions:

- Was the Secretary of Defense given sufficient information to make decisions regarding the active/reserve mix?
- Were options presented to the DoD leadership?
- Were costs and benefits assessed for the other options presented?
- Was the decision process interactive?

Our review suggests that the answer to all the questions is "yes." Issues were pulled into the Planning, Programming, and Budgeting System, which is the DoD's primary system for planning and managing its resources. All key staff of the relevant organizations were involved. Options were evaluated from the appropriate perspective of costs, risks, and capabilities. In sum, Total Force Policy was implemented in the *process* that led to the Base Force. *However, that statement is not intended as an endorsement of the product—the Base Force itself.* We evaluated it along with other alternative force structures, which we developed, and we summarize that development and the evaluation below.

Designing Alternative Force Structures

To design and evaluate alternative force structures, we first identified the characteristics that are most important in defining any active/reserve force

models. This set of defining characteristics provided the conceptual framework for developing the structures. We filled out that framework by considering probable military requirements of the decade and how likely it was that various organizations could be trained up and deployed to fulfill those requirements. We used this information to develop alternative structures intended to meet the requirements.

Defining Characteristics

Although existing and proposed models can be described in many ways, four broad characteristics set the various models apart and limited the alternatives that we finally developed:

- Purpose.
- National Military Strategy.
- Criteria for structuring forces.
- Integration of active and reserve forces.

Purpose is the reason why a military force exists. If the primary mission of reserve forces under Total Force Policy changed from primary augmentation of active forces in conflict to, for example, peacetime support of the nation, this new mission might require significant changes in both active and reserve forces. We recognize the important role played by the military in non-conflict activities. However, the study mandate dictates that conflict is the purpose we assumed in developing alternatives.

The **National Military Strategy** defines the "expected future military missions" that active and reserve forces must be designed to meet and identifies other constraints such as the requirement for forward presence and crisis response. Given various considerations, the alternatives we developed assume that all combat forces forward deployed outside the United States are active forces. The crisis response objective implies that if reserve combat forces are to participate in regional conflicts, they must be structured so that they can mobilize, train up, and deploy within relatively stringent time frames.

Criteria for structuring forces lie at the heart of different interpretations of Total Force Policy. In structuring forces, we focused on two criteria: (1) cost-effectiveness, usually considered the central principle of Total Force Policy and the primary criterion for force structuring, and (2) the political criterion that reserve combat forces should be included early in any deployment to

ensure that the commitment of forces truly represents the political will of the people.

Finally, how active and reserve forces are integrated reflects the preceding three defining characteristics and dictates the form that alternative force structures take. The types and level of integration considerably affect the rate at which reserve forces can train up and deploy in contingencies. We developed and analyzed the cost-effectiveness of force structures that included combinations of various *types* of integration at different *levels* of integration.

Military Requirements for Future Military Missions

The *Defense Planning Guidance* (DPG), FY 1994–1999, is the authoritative statement of military requirements under the current National Military Strategy. The DPG contains a specific, detailed, and quantitative assessment of the forces needed for crisis response in seven Illustrative Planning Scenarios (IPSs):

- Major Regional Contingency (MRC)-East.
- MRC-West.
- MRC-Europe.
- Concurrent Contingencies.
- Lesser Regional Contingency (LRC)-Far.
- LRC-Near.
- Reconstitution.

The DPG provides the performance goals that active and reserve forces must be designed to meet and against which they will be evaluated. For each of the MRCs and LRCs, the DPG includes a simple time-phased force deployment list comprising the air, land, and sea forces required and the time each unit of those forces must arrive in the theater to achieve U.S. military objectives there. The lists specify which forces are needed for the initial response force and decisive force for each MRC.

Given our congressional mandate, it was incumbent upon us to perform our own independent analysis, *using assumptions different from those incorporated in the IPS* to understand the robustness of the alternative active/reserve force structures and mixes we were to develop and assess. The purpose of our force requirement analysis was to ensure that the military requirements

generated by the scenarios were consistent with a wide range of plausible assumptions and conditions. The point was to guard against the possibility that the performance of alternative active/reserve force structures is dominated by a particular set of scenario assumptions, which may or may not be plausible and analytically useful.

To this end, we assessed the military requirements of the IPS under a range of assumptions about the timing of events and the effectiveness of friendly and enemy forces. In particular, we examined the active/reserve implications of changing the times at which decisions are taken to mobilize and deploy U.S. forces, the speed of transporting them to contingency theaters (lift), and the effectiveness of weapons systems. Our analysis employed computer simulations, discussions with staff of the warfighting commanders in chief (CINCs), and a political/military game involving very senior, retired general officers from all four Services.

The results of our analysis were a set of force generation requirements for MRC-East, MRC-West, and the Concurrent Contingencies. The LRC scenarios involve forces too small to significantly affect the structure and mix of active and reserve forces. We used these requirements in both structuring and assessing the military effectiveness of the alternative force structures, which we describe later in this summary. However, we should make the following general points here :

- First, the range of theaters contained in the DPG are representative of the types of conflicts that U.S. forces must be able to successfully confront. Therefore, we felt no need to add additional theaters beyond MRCs East and West.
- Second, the requirements for those MRCs are very sensitive to the scenario assumptions we examined. We were impressed by the degree of sensitivity to changes in mobilization and deployment times. Even small changes in these assumptions powerfully influence the size and timing requirements for the initial response force. In some cases, delays of one or two weeks in mobilizing and deploying U.S. forces can quickly drive the initial response force requirement above the ability of U.S. lift to deliver.
- Third, the Illustrative Planning Scenarios in the DPG were based on conservative, but not worst case, assumptions. That is, the DPG's versions of MRCs East and West make plausible and cautious assumptions. Indeed, in one sense, they are even optimistic; they do assume reasonably prompt national decisions to mobilize and deploy the force. A number of our cases are based on more pessimistic, but also reasonable, assumptions.

- Fourth, the critical decision concerning use of reserve combat forces is when to start offensive operations—that is, when the decisive force will be committed to battle. Based on our discussions with CINC staff and our military/political game, the best military judgment was that the decisive force must be deployed as soon as possible and should not wait until reserve combat units can be ready.

Training Time as a Constraint on Meeting Military Requirements

The “time it takes to prepare forces for combat” is a dominant factor in determining if a reserve unit can participate in the early phases of military operations. In the Army, we found that the readiness of CS/CSS units was the most critical because they directly support early deploying forces, but the readiness of Army reserve combat units was the most controversial. Thus, we analyzed training time for all the Services, but concentrated on the Army.

A typical brigade passes through 12 steps in preparing for deployment, and our estimates indicate that it takes about 128 days to go through those steps. There have been many proposals for reducing the time it takes to prepare reserve combat units for deployment. We examined a number of these proposals, and our review suggested four primary types of structural or resource changes that might lead to major improvements: (1) using computer simulations for training; (2) changing reforms underlying conditions that constrain reserve peacetime readiness; (3) using two sets of equipment to prepare early deploying reserve combat units; and (4) rounding out at lower echelons (company or battalion) to cut training tasks and increase confidence in leadership skills.

Our analysis indicates that rounding out at lower levels should decrease preparation time because lower level units have more limited missions and must be proficient in a smaller range of less complex tasks than higher level units. These effects can be seen in Table S.1, which shows how required training time differs at different levels and which also summarizes our findings on train-up time for the four Services.

Table S.1
COMPARISON OF POST-MOBILIZATION TRAINING TIMES

Service/Organization	Army (NDRI Estimates)	Air Force (NDRI Estimates)	Navy (CNA Estimates)	Marine Corps (CNA Estimates)
Ground Units				
Company	60 days	—	—	30 days
Battalion	70–90 days	—	—	60–70 days
Brigade/Regiment	128 days	—	—	90–20 days
Combat Service Support	15–35 days		7 days	30 days
Air Units				
Non-flying	—	≤ 7 days	—	—
Airlift and Tanker	—	≤ 3 days	—	—
Air Combat	—	14–21 days	60 days for carrier units	30 days
Naval Ships	—	—	2–5 months	—

Comparing and Assessing the Alternative Force Structures

Given all these considerations, our staff designed a range of force structures for the Army and Air Force, CNA staff did the same for the Navy and Marine Corps. As directed by Congress, these "options consider possible revisions in the missions assigned to some active and reserve units, possible changes in training practices, and possible changes in the organizational structures of active and reserve components."⁸ The alternatives are designed to provide forces that can "carry out expected future military missions."⁹ They incorporate options designed to facilitate the early commitment of reserve combat forces. The options also include "a range of manning levels and declining funding levels"¹⁰ and, as directed by Congress, "manning levels . . . provided for the Selected Reserves . . . for fiscal year 1993, levels significantly higher than those levels, and levels significantly lower than those levels."¹¹

⁸National Defense Authorization Act for Fiscal Years 1992 and 1993, *op. cit.*, p. 64.

⁹*Ibid.*, p. 63.

¹⁰*Ibid.*

¹¹*Ibid.*

We then assessed the military effectiveness, cost, and personnel sustainability of the alternatives.

Alternative Army Force Structures

Figure S.1 shows the seven force structures we examined in detail, four at the existing budget level and two at a budget level approximately 10 percent below the current level. We examined the DoD Base Force and alternatives with more and less active and reserve forces: the National Guard Association of the United States (NGAUS) alternative¹² and the Enhanced Active Army Force alternative, respectively. We found that, given the training time estimates discussed above, these forces could not deploy fully trained reserve combat forces in the *required* time, did not adequately provide for the

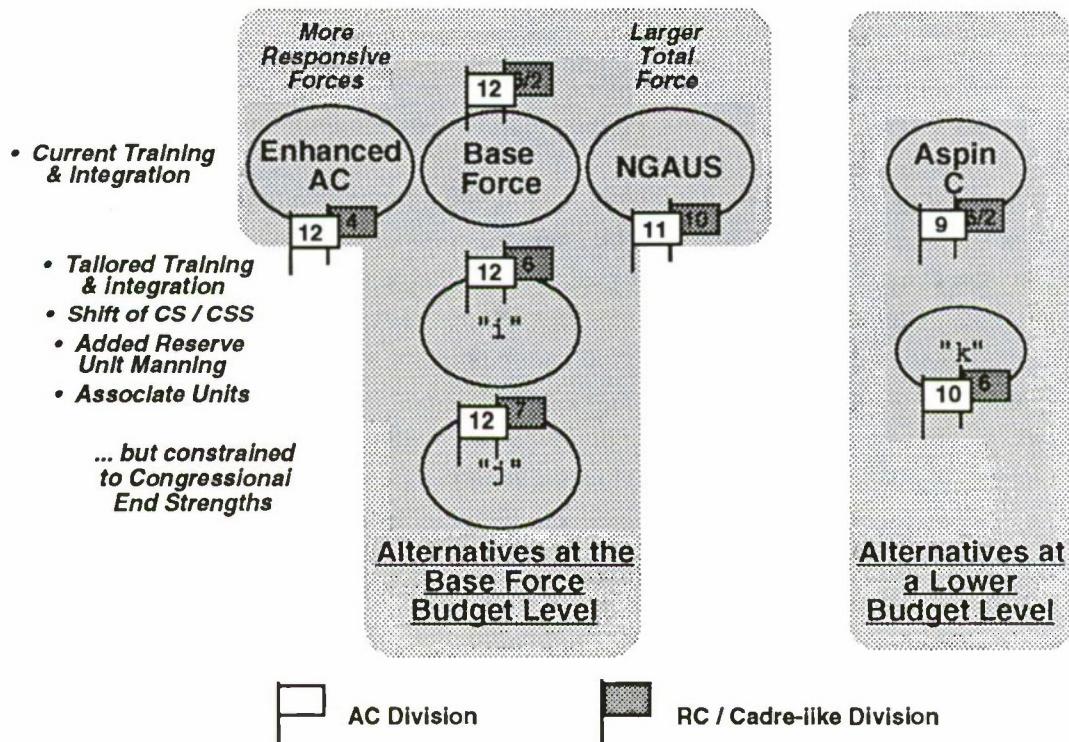


Figure S.1—Alternative Army Force Structures

¹²We found that at a cost equal to that of the Base Force, we could accommodate all of NGAUS' recommendations for 10 National Guard divisions and still afford 11 active divisions.

training of later mobilized reserve forces, or reduced the size of the reserves to a level judged to be politically unacceptable.

The Alternative "i" force incorporated a number of changes that, taken together, provided an *equal cost* alternative to the Base Force but addressed the above concerns. The Alternative "j" force made further adjustments to meet the 1993 end-strength goals discussed above.

At a reduced budget level, we considered the recent proposal by Congressman Aspin, Chairman of the House Armed Services Committee, and an Alternative ("k") that incorporated some of the features of Alternative "i."

Figure S.2 presents a scorecard comparing how well the seven alternatives meet the military requirements. (There are no cost comparisons because we designed the forces to be equal in costs at the two budget levels.) The requirements are arrayed across the top, the alternatives along the side. The light shading indicates that the alternative structure meets a requirement, the grayer shading that it falls marginally short, and the dark shading that it falls substantially short.

The scorecard shows that no one alternative dominates on all accounts. However, and most critical for any alternative that includes reserve combat

		RAND P051-S 2-1192									
		Forward presence: Europe	Forward presence: Korea	Crisis response / MRC-East	Crisis response / MRC-West	Crisis response / Concurrent Contingencies	Strategic reserve / Concurred Contingency	Strategic reserve / Heavy rotation base	Strategic reserve / Light rotation base	Reconstitution assets	
Current Budget Level Forces	Base Force			*	*					Yes	Cadre divisions
	NGAUS			*	*					No	
	Enhanced Active Force									No	
	Alternative "i" Force									Yes	Training "brigades"
	Alternative "j" Force									No	
	Aspin Option "C" Force			*	*					Yes	Reconstitution divisions
Lower Budget Level Forces	Alternative "k" Force									Yes	Training "brigades"

* The Base Force, NGAUS Force, and Aspin Option "C" Force can meet these requirements only if reserve brigades are not used.

Figure S.2—Scorecard for Army Alternatives

units, our assessment of required post-mobilization training times indicates that unless specific changes are made to improve reserve readiness, these units are not likely to be deployed to support an MRC until after the fight has begun.

Alternative Air Force Structures

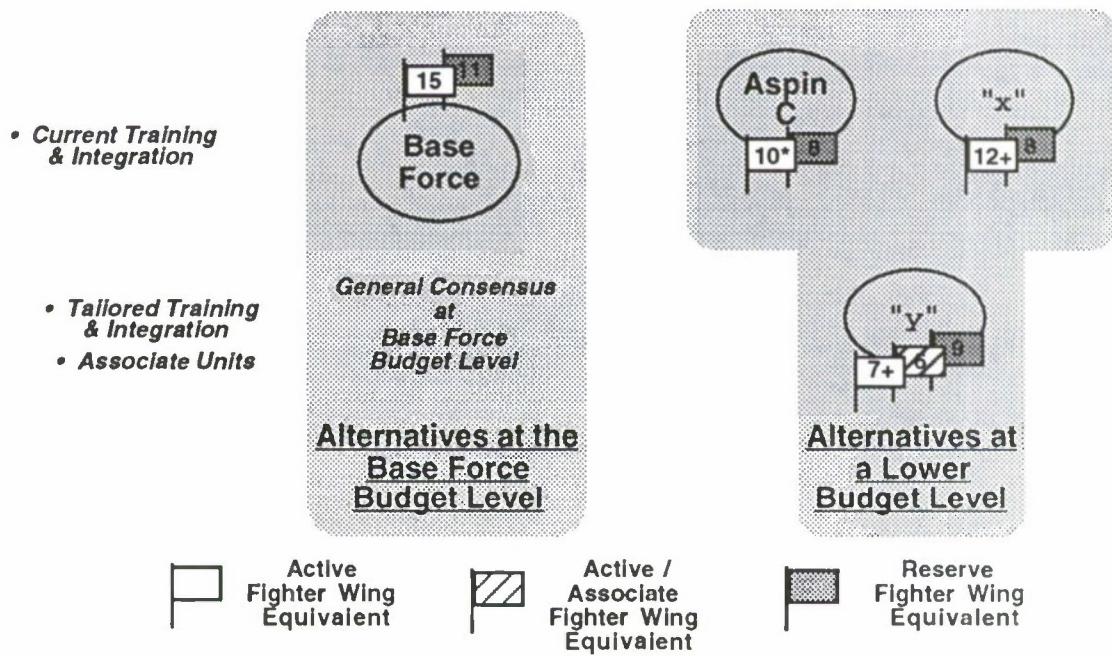
We developed Air Force options using much the same approach. However, the policy questions involved were more limited because Congress and the Office of the Secretary of Defense (OSD) generally agree on the size and balance of the active and reserve components in the Air Force: The Defense Authorization Act for Fiscal Years 1992 and 1993 and the Base Force call for roughly the same levels of reserve and active forces.¹³ Thus, we focused our efforts on the mandate to develop and assess smaller force structures at lower budget levels than the Base Force level.

Figure S.3 presents the four major alternatives we considered: the Base Force (as a benchmark for comparing cost-effectiveness) and three alternatives at a budget level 10 percent lower than the Base Force. The challenge for these smaller force structures is to provide an appropriate power projection capability for crisis/contingency response, while maintaining adequate overall force size and balance.

Two of the force structure alternatives we analyzed at the lower budget level rely on the current approaches to training and integration. These forces differ primarily in the composition of the fighter force. The third alternative was designed in response to challenges facing smaller force structures: the need for a robust interdiction and multi-role capability despite smaller overall force size. This alternative differs from the others primarily in the degree of its reliance on the reserve associate concept.

Figure S.4 shows the ability of each Air Force alternative structure to provide power projection, mobility/lift, and battle control (C3I). Because these alternatives are all lower-budget level forces, we compare their ability to that of the Base Force, which is generally considered to be "acceptable to carry

¹³National Defense Authorization Act for Fiscal Years 1992 and 1993, *Conference Report to Accompany H.R. 2100*, November 13, 1991, pp. 63–64.

*** Note:**

Aspin Option "C" totals 19 Fighter Wing Equivalents if multi-role aircraft committed to the defense suppression mission are included.

Figure S.3—Air Force Alternative Force Structures

out expected future military missions" at the currently planned budget level. The scorecard is divided into four areas: the three capabilities outlined above and other important considerations. Each cell is shaded to reflect the alternative's ability to provide the same capabilities relative to the Base Force's capabilities. Dark shading reflects substantially less capability than the Base Force, gray shading reflects marginally less, and light shading indicates a capability substantially the same as the Base Force's.

As the scorecard shows, the smaller forces are less capable than the Base Force. These forces were designed to reflect the need for battle management and mobility/lift, considering the kinds of military contingencies they may be expected to carry out in the future. To meet the lower budget levels for these alternatives, compromises had to be made. In each, the cuts were made in power projection capabilities. Because of this, the alternatives do not hide unspecified hollowness in hard-to-appreciate areas such as C3I. They are

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		Fighter Wings	Bombers	Strategic Lift	Air Refueling	Tactical Lift	Strategic	Air-to-Air Operations	Air-to-Ground Operations (inc. FAC)	Other Considerations
	Current Level	Base Force								Yes
	Lower Budget Level Forces	Aspin Option "C"			b					Yes
	Alternative "x"							d		Yes
	Alternative "y"	a					c	e		Unknown

NOTES:

- a. Includes more air-to-air, multi-role and interdiction capability than Option "C" and more multi-role and interdiction capability than Alternative "x", but is about three wings smaller than the Base Force. (two CAS and one multi-role).
- b. Includes about six percent more airlifters than the Base Force.
- c. Includes additional crews for air-to-air C3I aircraft such as AWACS.
- d. Has about one-half wing fewer Forward Air Control Aircraft than the Base Force.
- e. Has about one-half wing fewer Forward Air Control Aircraft than the Base Force; provides additional crews for air-to-ground C3I aircraft such as Joint STARS.

Figure S.4—Scorecard for Air Force Alternatives

what they seem, and these smaller alternatives provide less power projection capability than the Base Force. By relying more on reserve forces through the associate concept, Alternative "y" has a much smaller shortfall in that capability. However, relying more on air reserve forces in new ways does entail uncertainties, among these are the long-term sustainability of the pilot force.

Alternative Navy Structures

Consistent with congressional direction,¹⁴ CNA considered alternative cases corresponding to three levels of Navy reservists:

- The level included in the FY 1992–1993 congressional authorization (about 142,000 Selected Reservists).
- Levels substantially below 142,000.
- Levels substantially above 142,000.

¹⁴*Op. cit.*, pp. 62–64.

CNA generated the alternatives using four different methods:

- Considering already proposed alternatives for future force levels.
- Identifying which tasks are most suited to the reserve.
- Analyzing detailed initiatives for combat and support forces.
- Considering a requirements-based minimum reserve.

These methods were used to generate seven alternatives to the current active-reserve mix and to the missions assigned to the active and reserve components. They are listed in Table S.2.

In comparing the alternatives, CNA considered the following characteristics:

- Combat capability and capability to generate forward presence.
- Time required for training.
- Feasibility for recruiting/retention.
- Cost.

Measured against two MRCs and the Navy's current patterns of forward deployment, the capabilities of the different options are similar, as shown in Figure S.5. The differences shown reflect differences in combat capability. Availability and training do not present a problem for support forces in the Navy. A lightly shaded cell indicates sufficient capability. A darker-shaded cell indicates that the capability is either uncertain or not quite sufficient. Clearly, capabilities increase as one moves to the right of the table, but the significance of the increase is not apparent.

As to cost, the Base Force is the baseline from which savings are estimated. The first two alternatives in Figure S.5 are closely related to Aspin Option "C." They offer about \$10 billion in annual savings relative to the last four alternatives, which are closely related to the administration's Base Force. The bulk of the \$10 billion savings, however, is not due to changes in the active/reserve force mix. Rather, it is the result of the deep cuts in active Navy forces that are part of Aspin Option "C."

Marine Corps Alternative Structures

Table S.3 presents the ten alternatives that CNA evaluated for the Marine Corps. Because the Marine expeditionary force (MEF) is the Marine Corps'

Table S.2
NAVY FORCE ALTERNATIVES

Alternative	Description
Base Force	Includes 450 ships (including 12 aircraft carriers, 150 surface combatants, and 80 submarines), 11 active air wings, 2 reserve air wings, about 500,000 active component personnel, and about 118,000 Selected Reservists.
Aspin Option "C"	Includes 340 ships (11 aircraft carriers, 100 surface combatants, 40 submarines), 10 active air wings, 2 reserve air wings, 432,000 active component personnel, and about 112,000 Selected Reservists.
Reserve combat	Increases the number of surface combatants in the Aspin alternative to 150 by adding 50 frigates to the NRF and retains 50 laidup SSNs.
Increased reserve base force (IRBF)	The same as the Administration's Base Force except that the number of Selected Reservists is increased to about 142,000—the level originally authorized by Congress in 1992 for 1993.
Increased reserve support forces	Has almost 20,000 more reservists than the IRBF (above). These reservists are concentrated in personnel support, force support training, and individual training.
Increased reserve base plus specific initiatives	Adds the following initiatives to the IRBF: Has fewer maritime patrol squadrons to achieve a force structure of 11 active/11 reserve. Places all FFG-7 ships in NRF in paired-ship program (if the test of the concept is successful). Transfers 7 MCM-1 ships to reserve to make 7 active/7 reserve; establishes paired MHC-51 and MCM-1 NRF programs (ROS 90 days). Forms 3 reserve AMCM squadrons, so capability is split roughly 50/50 active/reserve. Establishes 18 amphibious ship RRF (ROS 75 days) from retiring ships. Mans hospital ship medical treatment facilities 50 percent with Selected Reservists, and transfers 3 active fleet hospitals to reserve and eliminates remaining active fleet hospitals. Creates mobile reserve logistic task forces to coordinate theater logistics. Creates STREAM and VertRep teams and MILDETS for CLF ships. Establishes an SSN reconstitution force in decommissioned status—about 15 SSNs by 1999.
Aspin Option "C" plus a minimum reserve	Has about 65,000 Selected Reservists. Emphasizes medical, logistics, and augmentation. Uses the Aspin option C active force.

Contingency	Option C with minimum reserve	Reserve combat alternative	Base force	Increased reserved base force (IRBF)	IRBF case plus increased reserve support forces	IRBF case plus specific initiatives
MRC East						
MRC West						
MRC Europe						
MRC East plus MRC West						
Forward deployments						
Forward deployments plus countemarcotics operations						

Figure S.5—Scorecard for Navy Combat Force Alternatives

Table S.3
MANPOWER SUMMARY FOR EACH
ALTERNATIVE FORCE STRUCTURE

Alternative	Personnel (1,000s)		
	Active	SMCR	Total
4 MEFs			
2.5/1.5	180	63	243
2/2	159	82	241
3.5 MEFs			
2.5/1	176	42	218
2/1.5	156	62	218
3 MEFs			
2.5/0.5	173	23	196
2.2/0.8	159	35	194
2/1	152	42	194
1.5/1.5	131	63	194
2.5 MEFs			
2/0.5	149	23	172
1.5/1	128	43	171

basic warfighting organization, CNA adopted it as the means of depicting alternative force structures. They present all alternatives in terms of their

number of active and reserve MEFs; for example, the 2/1 alternative contains 2 active and 1 reserve MEF. Each alternative force structure is identified by the number of war-strength active/reserve MEFs it can support. Table S.3 also gives the total number of active and Selected Marine Corps Reserve (SMCR) personnel in each alternative.

Figure S.6 provides a qualitative summary of the results for the following criteria:

- The ability of the alternative to respond to the MRCs and have some forces left over for other commitments.
- The ability of the alternative to meet all MRC requirements on time.
- The ability of the alternative to meet only the initial response force (IRF) requirements for each MRC.
- The assessment of each alternative's rotation capability.
- The ability to sustain the goal of 30 percent prior service Marines in the SMCR.
- The one-time transition costs as differences from the DoD Base Force (in FY 1993 dollars).
- The long-term cost as differences from the DoD Base Force and the alternative (in FY 1993 dollars).

The best alternatives on each criterion are identified by light shading; reasonably good alternatives are identified by the darker shading. For example, because the alternatives with 4 MEFs have the best capability to respond to any MRC and have forces left for other commitments, they have light shading in the "Forces for MRCs plus" column. The alternatives with 3.5 MEFs have forces left after responding to all of the scenarios except option 1 of Concurrent Contingencies, so they have darker shading. The remaining alternatives would have virtually no forces left after responding to MRC-Europe or Concurrent Contingencies.

Sustainability of Reserve Forces

One final consideration for force structure alternatives is the Services' ability to recruit and retain reserve levels that are required by some of the alternatives. The key issue here is the ability of the reserve components to sustain a base of personnel with prior active military service. This is vital because of the effect that such personnel have on reserve readiness. Our assessment of this issue indicates that the drawdown of military forces will, in and of itself, create problems for the reserves in recruiting prior service personnel.

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Alternative	Forces for MRCs plus	MRCs on time	IRFs only	Peacetime forward presence	Sustainability	Transition cost (\$ million)	Steady-state cost (\$ million)
2.5/1.5						530	1,700
2/2						950	600
2.5/1						100	1,000
2/1.5						490	100
2.5/0.5						80	500
2.2/0.8						0	0
2/1						90	-600
1.5/1.5						530	-1,600
2/0.5						-40	-1,100
1.5/1						90	-2,300

Meets all requirements
 Meets most requirements

Figure S.6. Scorecard for Marine Corps Alternatives

Further, our assessment of alternative force structures indicates that the larger the proportion of reserve forces in a force structure, the greater the recruitment shortfall for prior service personnel will be.

The Army National Guard Combat Readiness Reforms Act of 1992 establishes a minimum percentage of prior active duty personnel in the Army National Guard (ARNG): By September 30, 1997, 65 percent of all officers and 50 percent of all enlisted members should have at least two years of active duty. While Congress enacted prior service goals only for the Army National Guard, we can compare the prior active duty content of each Service to the goals as a benchmark. Our analysis shows that in FY 1989 the ARNG officer and enlisted personnel fell far below the goals, as did the U.S. Marine Corps Reserve (USMCR) enlisted force. ARNG officers were at 38 percent, relative to a goal of 65 percent and ARNG enlisted were at 36 percent, relative to a goal of 50 percent. The U.S. Naval Reserve (USNR) and U.S. Army Reserve (USAR) officers were nearly at the goal, as were the USNR enlisted. The USAR enlisted force was somewhat below the goal. Both Air Force reserve components exceeded the goal.

Having looked at factors that determine the reserves' ability to recruit and retain prior service personnel, we found that under current policies only the Air Reserve Component could maintain current levels of prior service personnel, but even it would have to recruit nearly all of the active forces leaving active duty who are currently willing to join reserve forces. For the remaining components, there will be a loss of prior active duty personnel under most envisioned force sizes, and this means a significant loss of the base of military experience that prior active service personnel bring to the reserves.

Restoring that level of experience even to current levels will require either enlisting more active duty losses than are currently available and willing to join reserve service, or significantly raising the current retention rate of prior active duty personnel. Either option will require major reforms of current active and reserve compensation and personnel policy. For the reserves, it will present a long overdue opportunity to reform personnel and compensation policies that are the basis of the current problems as well.

Concluding Observations

As the summary of our assessment indicates, no single alternative force structure is dominantly more effective than the others at meeting future military requirements. However, some do come closer than others, and we believe the assessment does meet the mandate of providing the Secretary of Defense and the Chairman of the Joint Chiefs of Staff with the analytic information they need to "determine . . . the mix of mixes of reserve and active forces . . . that are considered acceptable to carry out expected military missions." The study led us to some more general observations that, we believe, are also significant for developing future force structures. We summarize these below.

Lessons from the Persian Gulf War

The Persian Gulf War was both the last conflict of the Cold War and possibly a prototype of regional conflicts to come. It provided many lessons that will help us build a more responsive total force structure for the future, but it pointed up how different the future is likely to be.

Each of the Services and their reserve components had notable successes. The Army was very successful in deploying and using CS/CSS units. Even the experience of the reserve combat brigades was much better than in similar

call-ups before the Capstone or roundout programs. The Air Force proved the utility of its associate units, the readiness of its reserve fighter force, and the ability to integrate reserve aircraft squadrons into deployed wings. The Navy's Selected Reserve structure facilitated the call-up of medical personnel with specialized skills. The Marine Corps' ability to integrate company sized units into their total deployed force was impressive.

However, the total force that existed when ODS/S began was developed to meet a global threat from a large Soviet empire. This force, both active and reserve, was many times larger than the force we deployed to Southwest Asia in 1990. As a result, we managed the call-up in ways that are not likely to be appropriate, or possible, in the future. Even with the focus on regional rather than global contingencies, the projected force structure is not so robust that the active components can go it alone. If we put even more support units into the reserve components, the president will have no choice but to call up the reserves even before he makes a final decision to deploy forces. Getting the reserve combat units into the fight will be more important than ever, but there are some realities concerning peacetime readiness and the time it takes to prepare reserve combat forces that must be faced.

Meeting the Need to Deploy Reserve Combat Forces Early

Our work suggests that, given the demands placed on roundout units to be ready for deployment with their parent divisions, they need considerably more post-mobilization training than many had assumed, both to ensure basic combat skills and to master, test, and demonstrate the ability to command and control combat brigades. While many reforms have been suggested and some have begun, more direct organizational reforms, such as rounding out units at lower echelons of command, may be necessary. While this has its drawbacks, we believe that it holds the best prospect for meeting the heavy demands on early-deploying reserve units.

During the Persian Gulf War, we were able to call the forces that were needed, when they were needed, and still had a very large residual force of active and reserve units to deter adventurism in other parts of the world. In the future, we will not have the capability to deploy forces to a second contingency unless we take deliberate steps to restock our military capability by calling up reserve combat forces as soon as active units are deployed to a combat theater. If we wait until the second contingency develops, either it will take months to make them ready or we will have to respond with troops

that are less than fully prepared. Our analysis suggests that more attention and resources should be given to that possibility.

Improving the Readiness of Reserve Combat Forces

An important question, and one that has been neglected, is how we bring the remaining reserve forces to combat proficiency. Our findings indicate that active units should be charged not only with supporting reserve training during normal peacetime periods, but, during a mobilization, they should constitute mobilization training units to rapidly bring reserve brigades up to wartime proficiency.

There are many opportunities to improve the performance of the total force by capitalizing on the unique strengths of active and reserve personnel. There appear to be opportunities to further capitalize on the lower sustaining cost of reserve units to complement active units in building a larger and more capable force structure. In both the Army and the Air Force, our research suggests that there are opportunities to extend the associate unit concept into new areas where we currently do not have enough crews—flying crews, maintenance crews, artillery and support crews—so that we can use expensive equipment up to its full potential. However, integration will require more flexibility on the part of Congress in the rules that it sets, for example, such as the need for total-force-duty payback periods, rather than active-duty payback periods for officers who receive their college education at government expense, or the authority to call up individual selected reservists.

One important way to improve readiness is to increase the numbers of men and women in the reserves who have extended periods of prior active military experience. As we discussed, there are limits to this, and the current voluntary system is not likely to provide the desired results. New ways must be tried, but they will require changing many of the current personnel practices to provide more flexibility for members with active experience to join units and to prevent stagnation within reserve units.

The Need for a More Integrated Total Force

In sum, our model for the future stresses a more integrated and internally cooperative total force that brings active and reserve personnel together in new and innovative ways to build a better and more robust force. There are important areas where that has been done and progress should continue.

The substantial role that reserve CS/CSS units play in supporting active combat units in the earliest days of a military operation works and should be expanded. Innovative concepts, such as the associate concept, need to be expanded. In the future, the role of the reserves will increase in importance, particularly as a critical element in deterring potential enemies who might try to take advantage of a situation when the United States is engaged in a major regional contingency. If deterrence fails, the reserves must provide the forces that will enable us to fight and win.

Glossary

AFR	Air Force Reserve
ANG	Air National Guard
ARC	Air Reserve Component
ARNG	Army National Guard
ASD	Assistant Secretary of Defense
BCTP	Battle Command Training Program
BEEF	Base Engineer Emergency Force
BES	Budget Estimate Submission
C&C	Command and Control
CAS	Close-Air Support
CATS	Combined Arms Training Strategy
CENTCOM	Central Command
CFE	Conventional Forces in Europe
CINC	Commander in Chief
CINCCENT	Commander in Chief of Central Command
CJCS	Chairman of the Joint Chiefs of Staff
CNA	Center for Naval Analyses
CNO	Chief of Naval Operations
COFT	Conduct-of-Fire Trainer
CONUS	Continental United States
COSCOM	Corps Support Command
CPA	Chairman's Program Assessment
CRAF	Civil Reserve Air Fleet
CS/CSS	Combat Support/Combat Service Support
DAIG	Department of Army Inspector General
DAMO-FDF	Department of the Army—Force Integration and Management Division
DARPA	Defense Advanced Research Projects Agency
DBOF	Defense Business Operations Fund
DCSOPS	Deputy Chief of Staff for Operations
DEPSECDEF	Deputy Secretary of Defense
DF	Decisive Force
DISCOM	Divison Support Command
DOC	Directed Operational Capability
DoD	Department of Defense
DP	Defense Program
DPG	Defense Planning Guidance
DPRB	Defense Planning and Resources Board
DPRK	Democratic People's Republic of Korea
DTA	Directed Training Association
EAC	Echelon Above Corps
EAD	Echelon Above Division
ERI	Engineer Restructuring Initiative
EXCOM	Executive Committee
FAC	Forward-Air Controller
FFRDC	Federally Funded Research and Development Center

FLOT	Forward Line of Own Troops
FMF	Fleet Marine Force
FORMIS	Forces, Readiness and Manpower Information System
FORSCOM	Forces Command
FSPG	Force Structure Planning Group
FTS	Full-Time Support
FYDP	Five Year Defense Program
GAO	General Accounting Office
GCC	Gulf Cooperation Council
GNP	Gross National Product
HASC	House Armed Services Committee
I&I	Inspector and Instructor
IDA	Institute for Defense Analyses
IDF	Israeli Defense Force
IMA	Individual Mobilization Augmentee
IPS	Illustrative Planning Scenario
IRBF	Increased Reserve Base Force
IRF	Initial Response Force
IRR	Individual Ready Reserve
JRTC	Joint Readiness Training Center
JS	Joint Staff
LMI	Logistics Management Institute
LRC	Lesser Regional Contingency
MAJCOM	Major Command
MATES	Mobilization and Training Equipment Site
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MLRS	Multiple Launch Rocket System
MOS	Military Occupational Specialty
MRC	Major Regional Contingency
NBC	Nuclear, Biological, and Chemical (Warfare)
NCO	Noncommissioned Officer
NDRI	National Defense Research Institute
NGA	National Guard Association
NGAUS	National Guard Association of the United States
NMS	National Military Strategy
NRF	Naval Reserve Fleet
NSDD	National Security Decision Directive
NSSD	National Security Study Directive
NTC	National Training Center
ODS/S	Operation Desert Shield/Storm
O&M	Operations and Maintenance
O&S	Operations and Support
O/C	Observer/Controller
OMA	Operations and Maintenance Account
OMB	Office of Management and Budget
OPTEMPO	Operational Tempo
ORI	Operational Readiness Inspection
OSD	Office of the Secretary of Defense
P1T1	Prisoners, Patients, Transients, and Trainees
PAA	Primary Authorized Aircraft

PAM	Program Assumption Memorandum
PBA	Program Budget Adjustment
PBD	Program Budget Decision
PDM	Program Decision Memorandum
POM	Program Objectives Memorandum
POS	Protection of Ocean Shipping
PPBS	Planning, Programming, and Budgeting System
PPO	Program Priority Objective
R&D	Research and Development
RCA	Reserve Combat Alternative
RFPB	Reserve Forces Policy Board
RFSPG	Reserve Force Structure Planning Group
ROA	Reserve Officer Association
ROK	Republic of Korea
ROTC	Reserve Officers Training Corps
RSAS	RAND Strategy Assessment System
RTD	Reserve Training Detachment
SEAD	Suppression of Enemy Air Defenses
SECDEF	Secretary of Defense
SIA	Station of Initial Assignment
SMCR	Selected Marine Corps Reserve
SORTS	Status of Resources and Training System
SSN	Attack Submarine
SWA	Southwest Asia
TAACOM	Theater Area Army Command
TAR	Training and Administration of the Reserve
TCDC	Tactical Commanders Development Course
TDA	Table of Distribution Allowances
TFWE	Tactical Fighter Wing Equivalent
TOA	Total Obligational Authority
UDP	Unit Deployment Program
USAR	United States Army Reserve
USMC	United States Marine Corps
USNR	United States Naval Reserve
USR	Unit Status Report
UTC	Unit Type Code
VTU	Voluntary Training Unit

Section I

Introduction

1. Introduction: Background and Nature of the Study

The structure and appropriate mix of active and reserve forces have been points of contention between the legislative and executive branches since the founding of the republic.¹ Most recently, this tension led Congress to require the Secretary of Defense to undertake “an assessment of a wide range of alternatives relating to the structure and mix of active and reserve forces appropriate for carrying out assigned missions in the mid- to late-1990s.”² This report presents the results of the first part of this study. The second part, to be carried out by the Secretary of Defense and the Chairman of the Joint Chiefs of Staff, will evaluate our findings. In this section, we review the recent developments that led Congress to mandate this study, the nature and scope of the study, and the structure of this report.

Development and Issues of Total Force Policy

Before 1920, there were two basic issues:

1. Whether the nation’s defense would be based upon a professional army or an organized reserve of part-time citizen soldiers trained in peacetime;
2. Whether the Regular Army should be fully formed to fight or should be a cadre force capable of expanding with volunteers or conscripts in time of war.

After the passage of the National Defense Act of 1920, Congress decided upon both a fully formed Regular Army *and* an organized reserve. Large numbers of reserves were called for World War II, for the Korean War, and during the Berlin Crisis of 1961. However, with the exception of a token call-

¹Article 1, Section 8, of the Constitution gives Congress the power to “raise and support armies . . . to provide and maintain a navy . . . [and] to provide for organizing, arming and disciplining the militia.”

²House of Representatives, National Defense Authorization Act for Fiscal Years 1992 and 1993 Report 102-114, U.S. Senate Committee on Armed Services; *Assessment of the Structure and Mix of Active and Reserve Forces*, Conference Report, Report 102-311, Sec. 402, p. 62.

up in 1968, the reserve components were not called during the Vietnam War.³

As the Vietnam War was winding down in 1970, and in order to "reduce expenditures," Secretary of Defense Melvin Laird ordered "reductions in overall strengths and capabilities of the active forces, and increased reliance on the combat and combat support units of the Guard and Reserves."⁴ He proposed that a new "*Total Force Concept* . . . be applied in all aspects of planning, programming, manning, equipping and employment of Guard and Reserve Forces."⁵ In 1973, with the advent of the All-Volunteer Force, Secretary of Defense James Schlesinger told the military departments, "The Total Force is no longer a 'concept.' It is now the Total Force Policy which *integrates* the Active, Guard and Reserve forces into a homogenous whole."⁶

What Is Total Force Policy?

Total Force Policy has two tenets often cited in official Department of Defense (DoD) publications: reliance on reserve forces as the primary augmentation for the active forces and integrated use of all available personnel—active, reserve, civilian, and allied.⁷ The Department of Defense provided an operational definition of the Total Force Policy, which has been cited by the Senate Armed Services Committee:

It is DoD policy to place maximum reliance on Guard and Reserve units and manpower. We use active units and manpower to support scheduled overseas deployment or sea duty, training requirements, and to support the rotation base. Above that level, we plan to support military contingencies with Guard and Reserve units and manpower when they can be available and ready within planned deployment schedules on a cost effective basis.⁸

³Reserves were called for Operation Just Cause in Panama and in very large numbers to support Operation Desert Shield/Storm in the Persian Gulf.

⁴Secretary of Defense Melvin Laird, *Support for Guard and Reserve Forces*, Department of Defense Memorandum, August 21, 1970.

⁵*Ibid.*

⁶Secretary of Defense James R. Schlesinger, Department of Defense Memorandum, August 23, 1973.

⁷DoD, *Total Force Policy Report to the Congress*, December 1990, p. 13.

⁸Cited in Senate Report 102-114, *op. cit.*, p. 202. This is consistent with Assistant Secretary of Defense (Reserve Affairs) Stephen Duncan's "rebuttable presumption" that all forces should be in the reserve component unless there is a specific justification for them to be in the active component.

However, several of the military service organizations and many in Congress⁹ believe there should be a third tenet requiring early deployment of reserve units. In their view, the Army, in particular, should be structured to make active and reserve units so interdependent that a president could not send military forces to combat without activating the reserves.¹⁰ This view stresses the "value of the citizen-soldier concept to American support for our military and national will in crisis situations."¹¹ While not accepted by the Bush Administration as an official part of Total Force Policy, this tenet has taken a prominent place in the current debate. It significantly changes the criterion for structuring the reserves from (a) being available and ready within planned deployment schedules on a cost-effective basis to (b) meeting a specific design principle.¹²

Implementing Total Force Policy in the 1990s

Dramatic changes in the world situation have brought the historic issue of active/reserve force mix to the forefront again. In the Defense Authorization Act of 1990, Congress directed the DoD to undertake an in-house Total Force Policy study. That study was done against a complex backdrop:

- Fundamental changes in a world that saw long-standing threats and planning scenarios become outmoded;
- The major call-up of reserve forces to support the Persian Gulf War;
- A number of then-current efforts by the Services and the Joint Staff to define a new military *Base Force Strategy* as part of the FY 1992 DoD budget formulation process; and
- Negotiations with the Congress on the overall DoD budget.

The conclusions were presented in the *Total Force Policy Report to the Congress* (December 1990) and reflected in the administration's fiscal year (FY) 1992 defense budget. They were not universally accepted by Congress. Instead, Congress authorized and appropriated funds to support a reserve manning

⁹See Hearings Before the Manpower and Personnel Subcommittee of the Senate Armed Services Committee, April 8, 1992.

¹⁰See Lewis Sorley, "Creighton Abrams and the Active-Reserve Integration in Wartime," *Parameters*, Summer 1991.

¹¹Senate Report 102-114, *op. cit.*, p. 202.

¹²National Guard Association of the United States and Adjutants General Association of the United States, *An Alternative Force Structure Proposal*, February 1992.

level substantially greater than President Bush had requested. Congress also required that the Secretary of Defense undertake this study.

The Congressionally Mandated Study

Section 402 of the National Defense Authorization Act for Fiscal Years 1992 and 1993 mandates that this study provide the “comprehensive analytic information” that will allow the Secretary of Defense and the Chairman of the Joint Chiefs of Staff to evaluate the “mix or mixes of reserve and active forces . . . that are considered acceptable to carry out expected future military operations.”

The legislation specifies several key elements of the study, including assessments of the following:

- Existing policies and practices for implementing the Total Force Policy;
- The effectiveness of the Total Force Policy and practices during the Persian Gulf conflict;
- A range of possible mixes of active and reserve forces, assuming a range of manning and funding levels;
- All active and reserve component missions, *with particular emphasis on missions carried out by land force*; and
- The costs associated with alternative active and reserve force mixes and structures.

The legislation also highlights details to be examined:

- The ability of alternative forces to prosecute military operations;
- The time required to prepare forces for combat;
- The cost of training and maintaining forces in peacetime;
- Possible changes in active and reserve missions, training practices, and organizational structure; and
- Sustainability of reserve recruiting and retention.

In October 1992, Congress amended Sec. 402 and asked that the study include, “an assessment of the effects on combat readiness . . . of different

mixes of active and reserve component combat support and combat service support units.”¹³

Scope of the Study

As required by Congress, on May 1, 1992, the study group provided an *Interim Report* to the Secretary of Defense.¹⁴ One purpose of that report was to ensure that there was “no misunderstanding concerning the scope of this study, what we are doing, and how we are going to provide the ‘comprehensive analytic information’ needed to assess the structure and mix of future active and reserve forces.”¹⁵ Several organizations made comments on the interim report which suggest that we should clarify some points about the congressional mandate and the scope of our inquiry at the outset of this report.

Emphasis on Land Forces

While the study covered all the Services, there is a clear emphasis on the Army. We believe this was the intent of Congress in saying, “The study group shall examine all active and reserve component missions, with particular emphasis on missions carried out by *land forces*” (emphasis added).¹⁶ Further, the Bush Administration and Congress disagree more about the end-strength of future active and reserve forces for the Army than any other Service. Specifically, Congress asked that we “consider the (force) levels provided for the Selected Reserve . . . for fiscal year 1993” in our assessment. Projecting that level against the administration’s current program (Table 1.1) shows that DoD wants about 187,000 fewer reservists than Congress authorized in the National Defense Authorization Act for Fiscal Years 1992 and 1993. Eighty-two percent of that difference is in the Army.¹⁷ Thus, we put our emphasis where we saw the greatest differences.

¹³House, *Amendment to Section 402*, Congressional Record, October 1, 1992, p. H-10239.

¹⁴The report was forwarded by the Deputy Secretary of Defense to the Armed Services Committees on May 12, 1992.

¹⁵National Defense Research Institute, *Assessing the Structure and Mix of Future Active and Reserve Forces: Interim Report to the Secretary of Defense*, RAND, N-3520-OSD, 1992, p. iii.

¹⁶Section 402, *op. cit.*, p. 63.

¹⁷The actual differences are 154,280 in the Army (Guard and Reserve), 23,745 for the Navy, 7,330 for the Marine Corps, and 1,800 for the Air Force (Guard and Reserve). See *Interim Report*, *op. cit.*, p. 23.

Table 1.1
DoD AND CONGRESSIONAL MANPOWER LEVELS FOR
FY 1997

Component	DoD FY 1997 Base Force	Congressional FY 1997 Base Case	Difference
Active			
Army	536,000	?	?
Navy	501,200	?	?
Marine Corps	158,800	?	?
Air Force	430,300	?	?
Total	1,626,300	?	?
Selected Reserve			
Army National Guard	338,000	425,450	-87,450
Army Reserve	229,400	296,230	-66,830
Naval Reserve	117,800	141,545	-23,745
Marine Corps Reserve	34,900	42,230	-7,330
Air National Guard	118,200	119,400	-1,200
Air Force Reserve	81,800	82,400	-600
Total	920,100	1,107,255	-187,155

SOURCE: National Defense Authorization Act for Fiscal Years 1992 and 1993 and Office of the Assistant Secretary of Defense (Comptroller), February 3, 1992.

NOTE: As required, the "Congressional FY 1997 Base Case" is the FY 92 Authorization Act's projection of the FY 1993 authorized end-strength levels. The actual FY 1993 authorization contained in the FY 93 Act is slightly lower.

Emphasis on Military Operations and Readiness

While this study was going on, domestic missions for both active and reserve forces became a topical issue. On June 23, 1992, Senator Nunn devoted a floor speech to the subject.¹⁸ The National Guard Bureau expressed its concern over the issue in a review of the *Interim Report*: "The study cannot consider the true value of the National Guard to national security unless it takes into consideration the value of our domestic (nonfederal) mission; [the study gives] disproportionate value to immediate readiness."¹⁹

As we note in Chapter 5, one of the defining characteristics of a military force is its *purpose*, and we identify non-conflict missions as an important factor defining the structure of a military force. However, we have emphasized

¹⁸Senator Sam Nunn, *Forging Civil-Military Cooperation for Community Regeneration*, Floor Speech, Congressional Record, p. S8602, June 23, 1992.

¹⁹Letter from Vice Chief of the National Guard Bureau Major General William A. Navas, Jr., to the study director Dr. Bernard Rostker, May 22, 1992.

combat missions because Congress asked us to "conduct an analysis of the ability of the . . . alternatives . . . to successfully prosecute a range of military operations and [to] focus on the time that would be required to prepare such [alternative] forces for *combat*"(emphasis added).²⁰ Furthermore, in the 1992 amendment to Section 402, Congress asked that we again focus on "combat readiness . . . of Army . . . early deploying contingency corps."²¹ By limiting the study this way, we are not implying that domestic missions are unimportant. On the contrary, we believe they are so important that they should be addressed in a study of their own.²²

The Range of Military Operations

A critical decision in the design of this study was how we would specify the "expected future military missions" that would be the focal point of our analysis. We had to choose carefully so that neither the administration²³ nor Congress could dismiss our results as irrelevant or biased. We wanted our choice to facilitate the debate and to build a bridge between both parties. As we noted in the *Interim Report*, we used the Illustrative Planning Scenarios (IPSs) as the current authoritative statement of military requirements. (These scenarios are described in the *Defense Planning Guidance, FY1994–1999*.) By starting with these scenarios, the study clearly could provide the "comprehensive analytic information" that the Secretary of Defense and Chairman of the Joint Chiefs of Staff needed to "determine, on the basis of the evaluation, the mix or mixes of reserve and active forces included in the independent study that are considered acceptable to carry out expected future military missions."²⁴ We are also well aware of Senator Sam Nunn's concern that, "If you let me write the scenarios, I can tell you before you do your study how it is going to come out."²⁵ We also developed our own scenarios that test a range of plausible situations. These new scenarios differ from the original IPSs in their assumptions about the threat, timing of events, and effectiveness of weapons systems and allied forces.

²⁰Section 402, *op. cit.*, p. 63.

²¹1992 Amendment, *op. cit.*, p. H-10239.

²²We also note that Section 402 makes no distinction between the National Guard and the federal reserve. We were asked to assess the mix of active and reserve forces *without* reference to the assignment of missions to the National Guard or the reserves.

²³This, of course, refers to the Bush Administration; the Clinton Administration may have another view.

²⁴Section 402, *op. cit.*, p. 63.

²⁵Hearings, April 8, 1992, *op. cit.*, p. 80.

In addition to creating these new scenarios, we met with the staffs of each war-fighting commander in chief (CINC) (and in one case, the CINC, himself) to better understand any concerns that they might have with the way the scenarios represent a future conflict in their region of the world. We have subjected the various scenarios and our alternative force structures and mixes to the rigors of a political-military game and force-on-force simulations. We have systematically reviewed what effects the alternative mobilization strategies are likely to have on the deployment of forces to an initial contingency and on the time it would take to rebuild our military capability for a second contingency. We believe that the various force structures and mixes that we assessed, our work with the IPSs, and our own scenarios provide the scope and independence that Congress requested.

Structure of the Report

The remainder of this report is divided into four sections, structured as follows:

- Section II, *Past Policies and Practices*, provides historical background that sets the stage for a general understanding of how and why these issues developed (Chapter 2). It also contains the mandated "assessment of the effectiveness of the Total Force Policy during the Persian Gulf Conflict"²⁶ (Chapter 3), and the review of how Total Force Policy is implemented in the Department of Defense, using the development of the Base Force as a case study (Chapter 4).
- Section III, *Developing Alternative Active/Reserve Structures and Force Mixes*, reviews those factors that we believe define alternative active/reserve force structures and mixes (Chapter 5). We then consider the "demand" for military forces—that is, the military requirements generated by the national military strategy (Chapter 6)²⁷—and the "supply"—that is, how likely it is that various organizations can be trained up and deployed to fulfill those requirements (Chapter 7). Given the results of these analyses, we present alternative force structures and mixes for the Army and Air Force at the current budget level, at the FY 1993 congressionally authorized Selected Reserve manpower levels, and at a level that reflects a

²⁶Section 402, *op. cit.*, p. 63.

²⁷A full discussion of the demand for Army forces is contained in the classified companion report not available for public release, National Defense Research Institute, *Assessing the Structure and Mix of Future Active and Reserve Forces: Final Report to the Secretary of Defense: Annex* (U), RAND, MR-140/1, December 1992.

10 percent decline in funding levels (Chapters 8 and 9). We also present the Center for Naval Analyses' (CNA's) analysis of alternatives for the Navy and Marine Corps (Chapter 10).

- Section IV, *Evaluating Alternatives*, examines the military effectiveness²⁸ of the alternatives as well as their cost (Chapters 11 and 12) and the sustainability of the personnel structure of the reserve forces (Chapter 13).
- Section V, *Conclusions*, presents the concluding observations of the study (Chapter 14).

We also provide a number of appendixes, in this report, and a companion annex volume, not available for public release, containing classified material supporting the discussions in Chapters 6, 8, and 11. As described in the preface, various parts of the study are described more fully in supporting publications.

²⁸A full treatment of military effectiveness of the Army alternatives is contained in the classified companion report.

Section II

Past Policies and Practices

2. Historical Background¹

In this chapter, we put the study and the rest of this section on *Past Policies and Practices* in context. We have been asked to "assess the effectiveness of Total Force Policy during the Persian Gulf conflict." A reading of history suggests that many of the issues that arose during Operation Desert Shield/Storm are simply the latest manifestations of problems that keep recurring. Further, our assessment of Total Force Policy during the Persian Gulf conflict and existing policies and practices for *implementing* the Total Force Policy can best be understood against the backdrop of the evolving relationship between the active and reserve components.

Continuing Force Mix Issues and Problems

Throughout its history, the United States has debated the normative structure and mix of active and reserve forces. After each war, including the Cold War, the debate has been particularly pointed. In retrospect, the history of active and reserve relationships in this country has moved along a well-defined path over the last 200 years, reflecting the substantial change in both the federal/state relationship and our changing role as a world power. We began with the primacy of state-funded militias, called to federal service under the *Militia* clause of the Constitution. We have moved to a Total Force Policy that integrates active and reserve forces into a single instrument of national policy, under the *Army* clause.

Along the way, certain problems and issues have persisted and have been addressed time and again. The most persistent have fallen into the following categories:

- The respective roles of the professional Army and the organized reserve of part-time citizen soldiers;
- The place of a fully formed Army, ready to fight, and cadre-type units capable of expanding with reserves, volunteers, or conscripts;
- The level and type of integration in peace and war; and

¹This chapter was prepared by James L. Lacy, a consultant to RAND.

- How to maintain peacetime readiness of reserve forces.

As we trace the history of the active/reserve force structure, we see these issues recurring from the end of the Revolutionary War through the Persian Gulf conflict to the present debate.

The Age of the Militia

The initial debate after the Revolutionary War was settled when the Constitutional Convention of 1787 chose both a federal military and a state militia to “provide for the common defense.” The president was empowered to be commander in chief of the Army and Navy of the United States, “and of the militia of the several states, when called into the actual service of the United States.”² Congress was granted the power “to raise and support armies” and “to provide and maintain a navy.” It was given the authority “to provide for calling forth the militia to execute the laws of the union, suppress insurrections and repel invasions” and:

To provide for organizing, arming and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively, the appointment of the officers, and the authority of training the militia according to the discipline prescribed by Congress....³

The Second Amendment further guaranteed that “A well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed.”

Two early congressional actions shaped the debate for the next century. First, the Militia Act of 1792 left the individual states to their own discretion on questions of militia training, leadership, and deferments. The act nevertheless left much unsettled. The central questions concerned the military relationship between the regular and militia components. Were the militia the first line of defense until federal forces could be brought to bear, was it the other way around, or was it somewhere in between? Were regular forces dependent on the militia for expansion, or could they expand directly (through volunteers or conscripts)?

Second, in 1802, Congress authorized the establishment of a small professional military college, the U.S. Military Academy at West Point, thereby

²U.S. Constitution, Article II, Section 2.

³U.S. Constitution, Article I, Section 8.

providing a continuous flow of educated Regular Army officers who provided the core professional leadership and a focal point for the continuing debate.

The first test of the *federal army/state militias* compromise came with the War of 1812. President Madison secured congressional approval of a wartime army of 166,000 men to be composed primarily of militiamen.⁴ Three New England states opposed the war, however, and refused to provide militia forces.⁵ Some militia units also claimed constitutional immunity against fighting on foreign soil—in this case, Canada.⁶

Militia and Regular Army Issues After the War of 1812

The issue of the role of the militia and the federal Army was joined after the war. In 1820, Secretary of War John C. Calhoun proposed one of the several “models” of the peacetime structure for the military that have been continuously discussed. He proposed to “skeletonize” the peacetime army around a “cadre” that could serve as the nucleus for its own direct expansion in war. In Calhoun’s scheme, militia *personnel* might contribute to the expansion of the regular force, but militia *units* would play no significant part. His proposal got a hostile reception, and a ceiling of 6,000 regular enlisted personnel was set by Congress.⁷

The Mexican War of 1848 was a “volunteer” affair. Congress approved President Polk’s request to use the militia and to accept up to 50,000 volunteers to be enlisted for one year.⁸ Mindful of claims made during the War of 1812 that mandated militia service on foreign soil was unconstitutional, the militia was not called, but instead, were solicited on a voluntary basis.

During the Civil War, at first, both sides employed traditional methods for building their forces: reliance on organized militia, individual volunteers

⁴See Jim Dan Hill, *The Minute Man in Peace and War: A History of the National Guard*, Stackpole Co., Harrisburg PA, 1964, p. 14.

⁵The states based their refusal on the grounds that, since there was no insurrection or invasion, the president lacked the authority to call for the state militia. The legal issue was not decided until 1827, when the Supreme Court ruled that it was exclusively the president’s power to determine whether conditions allowing a militia call existed. *Martin v. Mott*, 12 Wheaton 19, 1827.

⁶That issue was not decided fully until the U.S. Supreme Court decision in *Perpich v. Department of Defense* on June 11, 1990.

⁷Russell F. Weigley, *History of the United States Army*, Macmillan Publishing Co., New York, 1967, p. 140. Regular Army strength, reduced to 6,000 in the 1820s, was little more than 16,000 as the 1860s began.

⁸Hill, 1964, *op. cit.*, p. 20.

from the states, and whatever troops were available from the small Regular Army. Each state had its own small War Department to administer the militia affairs. Equipping the early militia troops was left largely to the states. Each state saw to the enlistment of its men, chose its regimental officers, and saw to the outfitting of enlisted recruits.⁹ Officers were either elected by their men or appointed by state governors (typically in reward for recruiting or for political service), although, in practice, political pressures on officer elections tended to blur the distinctions. While the War Departments had virtually no say over militia officer selection, command above the regimental level was the duty and responsibility of the central government.

The role of the militia was reinforced in 1862. The Militia Act of July 17, 1862, reiterated the militia obligation of all men between the ages of 18 and 45 and authorized the president to call the state forces into federal service for nine months. However, less than a year later, Congress moved toward a federal Army, when it passed the Enrollment Act of 1863.¹⁰ This act asserted a liability to federal military service thus bypassing the militia clauses of the Constitution.

After the Civil War

After the Civil War, the Regular Army returned, essentially, to a small constabulary force, whose horizons stopped at the nation's borders, and whose principal purpose was to "pacify" American Indians and maintain public order in the Western territories. However, the usual post-war debate concerning the role of the militia and the Regular Army took a new turn. The period between 1870 and 1898, the year of the Spanish-American War, saw the United States grow to a world economic power poised to take its place on the political stage. In 1890, the Regular Army had a strength of 27,370, a size that had not varied by more than a few thousand since Civil War demobilization was completed in 1871, and that was about half the size of Belgium's army at the time.¹¹ Hill calculates that in 1860, there were approximately 130,000 organized militia members in a population of 32 million; in 1893, militia enrollments stood at 112,500 in a population of 72

⁹Weigley, *op. cit.*, p. 204.

¹⁰U.S. Congress debates are richly documented in Jack Franklin Leach, *Conscription in the United States: Historical Background*, Charles E. Tuttle, Rutland, Vermont, 1952, pp. 162–216.

¹¹Edward M. Coffman, "The American Army in Peacetime," *Military Review*, March 1992, p. 53.

million.¹² There were those who believed that this new status made reliance on the militia inappropriate and imprudent.

Major General Emory Upton, a distinguished Civil War veteran and commandant of cadets at West Point, challenged conventional thinking. Taking up the standard proposed by Calhoun a half century before, Upton proposed to emulate the German mobilization system and called for an expandable cadre Army—a proposal that gained considerable support among Army professionals “who despaired of ever achieving a reliable potential for mobilization through the militia.”¹³ At the same time, the newly formed National Guard Association (NGA) took issue with the views of the professional soldiers concerning the role of state militias. For the NGA, the militia, by then known increasingly as the National Guard, was to be a state constabulary, but also a key element in the national defense structure.¹⁴

These conflicting views generated opposing proposals about how to build the Army for the war with Spain. The professional officers of the War Department sought a federally organized and controlled volunteer force under Regular Army control. Congress opposed the War Department’s plans. The plan adopted by Congress in April 1898 explicitly chose the organized militia over a federal volunteer force. By its terms, the Regular Army would be supplemented through a presidential call for volunteers for federal service, but any militia organization that volunteered in a body would be accepted as a unit. The states might even raise new organizations, with officers appointed by the governors. Only generals and staff officers for higher headquarters were to be commissioned and assigned by the federal government.¹⁵

Toward a National Defense

Following the Spanish-American War, the Army dropped in strength but, again, to peacetime levels higher than anything the nation had accepted before. It was also a different Army after the war. The United States had acquired new overseas territories. Indeed, colonial responsibilities factored heavily in Congress’ willingness to allow a permanent military expansion. Secretary of War Elihu Root hoped to revamp the Army by creating a general

¹²Hill, *op. cit.*, p. 51.

¹³Robert K. Griffith, Jr., *Men Wanted for the U.S. Army: America's Experience with an All-Volunteer Army between the World Wars*, Greenwood Press, Newport, Rhode Island, 1982, p. 3.

¹⁴See Robert Bruce Sligh, *The National Guard and National Defense: The Mobilization of the Guard in World War II*, Praeger, New York, 1992, p. 14.

¹⁵Weigley, *op. cit.*, p. 296.

staff under a strong chief of staff to replace the old Army bureau system with its independent chiefs. As part of this reform, he planned to create a federal reserve of 100,000 men. The National Guard would have a role in the new Army organization, but essentially as a trained recruiting pool for the temporary emergency expansion of the Regular Army or the federal creation from scratch of wartime federal regiments of volunteers. Guardsmen would be accepted in federal forces only as individuals. Root's plan passed the House but ran into trouble in the Senate. The NGA, working with Congressman Charles W. Dick of Ohio, applied enough pressure that Root withdrew the national reserve proposal and agreed to a compromise.¹⁶ The result was the Militia Act of 1903 (the Dick Act), the first major revision of federal militia laws in 111 years.

The Dick Act of 1903

The Dick Act set precedents that are echoed today in reforms proposed by the current chairman of the House Armed Services Committee. The Dick Act provided that, at federal expense, general military stores, as well as arms and equipment, would be made available to organized National Guard units that drilled at least 24 times a year and maintained a summer encampment of not less than five days. Qualifying National Guard units were to be periodically inspected by Regular Army officers, and Regular Army officers were to be detailed to National Guard units. When in the actual service of the United States, guardsmen were subject to federal regulations and the Articles of War and were entitled to the same pay and allowances as regulars.

John McAuley Palmer

While the Dick Act established the basic architecture, an additional view was presented by Secretary of War Henry L. Stimson and Army Chief of Staff General Leonard Wood in 1912. The War Department's Annual Report for that year included an Army General Staff Study, *Report on the Organization of the Land Forces of the United States of 1912*. The author of the staff report was Captain John McAuley Palmer, a figure that would dominate issues of Army organization for the next half century. In the report, Palmer outlined the general concept that the Army would follow up to the present day. He argued for a small, fully formed and manned army-in-being that could fight immediately, not one that required expansion before it could fight effec-

¹⁶Hill, 1964, *op. cit.*, pp. 183–184.

tively. The mission of such an army would be to rapidly deploy and fight in the early stages of war, while a larger citizen army was mobilized and formed behind it.¹⁷ In this view, the reserve was not to be a manpower pool, but instead, a second Army.

While the Stimson/Wood/Palmer school rejected a skeletonized peacetime Regular Army, it also did not embrace the National Guard as the preferred reserve, because of problems it saw with state organization and control.¹⁸ Instead, the 1912 staff study looked to create a parallel federal reserve, to be raised by extending Army enlistments from three to six years, and giving enlistees the option of being furloughed to reserve status for the second three years. State guardsmen would not be left out of the picture entirely. They could voluntarily join federal service as individuals, and, once in, be grouped by their earlier National Guard affiliations.

Federal Reserve

Steps to create a federal Army reserve already were under way before the War Department's 1912 report. In 1908, Congress created a U.S. Army Medical Department consisting of "a Medical Corps and a Medical Reserve Corps." It was a modest opening, but it was also the first federal reserve corps established in peacetime. In 1912, Congress extended the length of Army enlistments to seven years, and authorized the furlough-to-reserve status of enlisted personnel who completed three years of honorable active service. It also provided a scale of bonuses for men already in service who, upon leaving, would reenlist into an on-call status in a federal Army reserve.

A further round of proposals and counter proposals finally resulted in the National Defense Act of 1916. It "completely transformed the relationship of the National Guard to the states and to the federal government,"¹⁹ although it did so by providing a bit of something for everyone. The act provided that the National Guard was to receive federal pay for drills (which were set at 48 per year), gave the president authority to prescribe the kinds of units to be

¹⁷U.S. War Department, *Report of the Secretary of War*, 1912, Vol. 1, Washington, D.C., 1912, p. 128.

¹⁸John O'Sullivan and Alan M. Meckler, eds., *The Draft and Its Enemies: A Documentary History*, University of Illinois Press, Urbana, 1974, p. 118. Also see Department of Defense, Committee on Civilian Components, *Reserve Forces for National Security*, Appendix 3, June 1948, pp. 87-89.

¹⁹Herman Boland, "A Historical Survey of U.S. Reserve Forces Policy," in U.S. President's Commission on an All-Volunteer Armed Force, *Studies Prepared for the President's Commission on an All-Volunteer Armed Force*, Government Printing Office, Washington, D.C., November 1970, p. IV-2-5.

maintained by the states, and required guardsmen to take a dual oath to their state and the United States. The 1916 act authorized the establishment of an Enlisted Reserve Corps (to be composed of technical specialists for the engineer, signal, quartermaster, ordnance, and medical services), an Officers' Reserve Corps, and a Reserve Officers Training Corps (ROTC).

Navy

The Navy caught up with these developments in three steps in 1914, 1915, and 1916. By 1914, 23 states had naval militia. The Naval Militia Act of that year essentially applied the Dick Act to these units. The act placed the state naval militia under U.S. Navy supervision, authorized federal pay for training, and provided presidential call-up authority. Legislation in 1915 provided the Navy a rudimentary federal reserve of its own by authorizing it to retain on reserve status, on a voluntary basis, discharged individuals. In 1916, Congress formally established federal Naval and Marine Corps Reserves, with federal pay for drills and training.

World War I

When Congress declared war on Germany on April 6, 1917, plans for a massive expansion effort already were in place. A Selective Service Act was submitted to Congress on the same day. As passed, the act authorized the president to raise the Regular Army and the National Guard to full war strength and to call the entire National Guard into federal service. The term of service for all was the duration of the emergency. The measure also gave the federal government precedence over the states in authorizing the president to appoint all officers, including those of the National Guard, and in providing that the president could use any state official in carrying out the draft.²⁰

Although small at the beginning, the Navy and Marine Corps expanded during the war. At the time of the November 1918 Armistice, the Naval Reserve had approximately 330,000 officers and men. The Marine Corps Reserve consisted of 276 officers and 5,968 enlisted men.

Looking back, we can see that World War I provided the model for future military mobilizations of the United States. Though it was scattered throughout the Army during the war, the National Guard had registered a definite

²⁰Weigley, 1967, *op. cit.*, p. 372.

claim for recognition as a key part of the national defense establishment. In doing so, however, it had embarked on a path that meant more federal control and a weakening of state autonomy.

The National Defense Act of 1920

Questions of a post-war American military establishment arose within weeks of the Armistice. Reflecting the views of Upton and the corps of regular professional officers, the War Department asked Congress to fund an expandable cadre army and relegated the National Guard to third rank in the plan's mobilization structure, behind the expandable Regular Army and a conscripted reserve. The War Department plan quickly ran into trouble with Congress. A final compromise was enacted as the National Defense Act of 1920. In it, Congress rejected the expandable cadre force, provided for a Regular Army organized into nine divisions, which were to serve as a quick emergency force, and restored and organized the National Guard and the Organized Reserve into divisions. However, while the act also restated that the National Guard was an integral part of the Army, when in federal service, it did not guarantee the integrity of National Guard units when activated for federal service, as many in the National Guard had wanted. In addition, the National Guard surrendered more of its state autonomy: the 1920 "compromise" provided for increased federal supervision in exchange for federal monetary support and training. Governors could still appoint and "commission" National Guard officers, but only those meeting War Department standards could receive federal funding.

If, in theory, the 1920 National Defense Act settled the central arguments, in practice, Congress never funded the original authorization. Rather than eliminate any division, the Army elected to maintain all nine in skeletonized (cadre) form. Dependent on federal drill pay that was never fully appropriated, the National Guard failed to achieve, in the 1930s, even half of the 435,000-man strength envisioned in 1920. (State governments were reluctant to spend money on the National Guard, beyond what they thought they needed for response to domestic disorder and natural disasters.) The Organized Reserve of the inter-war period "consisted of an Officers' Reserve Corps of about 100,000 and an Enlisted Reserve Corps that was practically non-existent because there were no means of recruiting it."²¹

²¹Weigley, 1967, *op. cit.*, p. 401.

The Navy and Marine Corps Between the Wars

The Navy during this period was in only mildly better shape. Up to 1925, the Naval Reserve had been a pool of individuals. The Naval Reserve Act that year established the first organized units, and provided for pay, facilities, equipment, and administrative and training assistance by the federal government. An organized Marine Corps Reserve, consisting of three rifle companies, was also established in 1925.²² Neither had easy going in terms of actual appropriations.

However, the Navy was differently positioned than the Army, at least in the Navy's own view. The Navy and the Marine Corps tended toward a structure based primarily on active forces—in concept, if not in fact. As Gerhardt has pointed out: "Naval reserves did exist, but their immediate role was to be that of filling out existing peacetime crews rather than providing the base for large-scale wartime expansion."²³ This comported with the view that the Navy was the first line of defense, to buy time until the nation's full war strength could be mobilized. Besides, the Navy of the pre-war period was convinced that its fleet-in-being was all that was needed to defeat a foreign enemy.²⁴

World War II

At the outbreak of war in Europe in September 1939, the U.S. Army consisted of 187,000 regulars, about 200,000 National Guardsmen, and approximately 120,000 members of the Organized Reserve Corps, primarily officers. While the administration and Congress considered several measures to improve military preparedness, little specific action was taken until Germany opened its western offensive on May 10, 1940. In his defense message of May 31, President Franklin Roosevelt included a request that Congress give him the authority to order the National Guard to federal duty, as well as the Naval Reserve. On July 10th, he also asked for a national draft as an additional

²²A precursor of the Air Force Reserve was established at this time as well. The Air Corps Act of 1926 created an Air Corps program within the Army Reserve structure.

²³James M. Gerhardt, *The Draft and Public Policy: Issues in Military Manpower Procurement, 1945–1970*, Ohio State University Press, Columbus, 1971, p. 5.

²⁴See U.S. Congress, House, Select Committee on Postwar Military Policy, *Proposal to Establish a Single Department of the Armed Services*, Hearings, 78th Cong., 2d sess., 1944, p. 249. The Naval Reserve, which had been formally organized in the Naval Reserve Act of 1925 (which also federalized the Naval Militia) was reorganized and expanded in the Naval Reserve Act of 1938. The act established four main components: the Fleet Reserve, the Organized Reserve, the Volunteer Reserve, and the Merchant Marine Reserve. It established the Naval Militia as a dual (federal/state) force. But the act essentially eliminated the crew, or unit, concept of Naval Reserve organization, except as training vehicles. The Marine Corps Reserve was also expanded.

defensive measure. Authority to order the National Guard to active duty passed Congress on August 27, 1940. On the day the Selective Service and Training Act of 1940 passed, September 16th, President Roosevelt federalized the first increment of guardsmen. The Marine Corps Organized Reserve was also called into active service in November 1940.

During 1940 and 1941, the frantic efforts to integrate regulars and reservists, guardsmen, and draftees created problems. An Army report in October 1941 listed a number of complaints: (1) morale was low; (2) guardsmen complained about the extension of their active tours beyond one year; (3) draftees felt discriminated against in the National Guard units to which they had been assigned; and (4) National Guard units resented having officers from other components assigned to them.²⁵

The first Army division to land in an overseas theater after Pearl Harbor was, in fact, a National Guard division. Still, deployment of National Guard divisions did not mean their early commitment to battle, nor were they the same units that were mobilized in 1940–1941. Regulars had been substituted for much of the National Guard officer corps, and draftees composed from one-third to over two-thirds of National Guard divisions' enlisted strength. From 1943 onward, the divisions deployed were mostly draftee-filled Army Reserve divisions, a total of 35 of these compared to 8 Regular Army and 12 National Guard divisions, and 2 mixed divisions.²⁶

The Naval and Marine Corps Reserves posed fewer problems in 1940 and 1941, but, then, their numbers were small. Naval reservists were ordered as individual fillers to ships of the fleet where needed. The Marine Corps Reserve was managed similarly. Though organized into units for training, no Marine Corps Reserve unit "was ever mobilized and put into service as such."²⁷

The Air Reserve Component, small in the pre-war years to begin with, was not a large factor. Air Corps Reserve officers in 1939 numbered 2,703, many of them on extended active duty. They were employed primarily for administration and did not train as units. In 1942, 29 Air National Guard observation squadrons were assigned to the ground forces as division aviation, "but there were no echelons above squadron level."²⁸

²⁵Martin Binkin and William W. Kaufmann, *U.S. Army Guard & Reserve: Rhetoric, Realities, Risks*, Brookings Institution, Washington, 1989, p. 39.

²⁶Hill, 1964, *op. cit.*, p. 454–455, 463.

²⁷Boland, 1970, *op. cit.*, p. IV-2-8.

²⁸*Ibid.*

The Post-War Period

The first priority at war's end was to demobilize the 14 million men and women on active duty, while maintaining a force capable of meeting the "postwar tensions that were building up around the world."²⁹ Those tensions became paramount in 1948. In February, Czechoslovakia fell to the Communists in a coup d'état. In early March, the Soviets took the first tentative steps at a Berlin blockade. The draft had been suspended in 1947. When it was reinstated in 1948, it not only provided the manpower to build up the active Army, it also provided a steady flow of personnel to the National Guard and federal reserves: The Selective Service Act of 1948 required that

1. Anyone *inducted or enlisted* would have a five-year reserve service obligation following active service—five years in a reserve pool, reducible to three by serving in an organized reserve unit;
2. Limited numbers of 18-year-old men were allowed to enlist for one year of active training and service, followed by either four years of compulsory service in an organized reserve unit or six years in a reserve pool;
3. Members of organized reserve units at the time of the draft's effective date would be deferred from induction so long as they continued their reserve membership; and
4. Youths under age 18 and one-half could gain a draft deferment by enlisting in the National Guard (but no other organized reserve).

The major policy debates in the post-war period centered around "unification" of the separate military services, sorting out their respective roles and missions, and the nature of future war, e.g., the role of nuclear weapons. However, reserve component issues did not entirely escape scrutiny at the time. In November 1947, Secretary of Defense James Forrestal appointed a "Committee on Civilian Components" to make "a comprehensive, objective and impartial study" of the reserve components. The committee, chaired by Assistant Secretary of the Army Gordon Gray, stressed the "vital importance of our reserve forces" in a future emergency.³⁰ But it also concluded that the reserve components "are not now capable of participating effectively in major combat operations on M-Day," and cau-

²⁹Harry S. Truman, *Memoirs*, Vol. 1, *Year of Decisions*, Doubleday & Co., Garden City, New York, 1955, p. 509.

³⁰DoD, 1948, *op. cit.*, p. 2.

tioned that "the impression that these forces now contain elements which are ready for combat is a dangerous illusion."³¹

This committee also singled out the bifurcated reserve structure of the Army and Air Force reserve components as a matter of crucial concern. It argued that "national security requires that each service have one federal reserve force." The National Guard should become a wholly federal reserve and "other units should be organized under State control to meet important local demands of war in the atomic age and the techniques of the fifth column."³²

Forrestal did not endorse the committee's report, chiefly because of (in his words) the "serious schisms which might develop as a result of the kind of struggle which might be precipitated by any effort to secure the requisite legislation."³³

The Korean War

On June 24, 1950, North Korean troops crossed the 38th Parallel. Four Army National Guard (ARNG) divisions were activated in September 1950. As in World War II, the divisions were subjected to heavy manpower levies during the training cycle and were delayed in order to train filler replacements. Guardsmen were separated from their units and reassigned as individuals to fill out active units, necessitating reconstitution of the ARNG units with untrained replacement personnel.³⁴

Mobilization of the other Army reserve component—the Army Reserve—also was not trouble-free. It, too, consisted of organized units and individuals. Unlike the other services, the Army was required to call Army National Guard and Army Reserve units only in whole units, when what was desperately needed were individual reservists with particular skills who

³¹*Ibid.*, p. 29.

³²*Ibid.*, p. 9.

³³Quoted in the statement by Secretary of Defense Robert S. McNamara in U.S. Congress, Senate, Committee on Armed Services and Subcommittee on the Department of Defense of the Committee on Appropriations, *Military Procurement Authorizations, Fiscal Year 1966*, Hearings, 89th Cong., 1st sess., 1965, p. 84.

³⁴Seven months after their activation, two of the four ARNG divisions were rated only 40 to 45 percent combat effective. They were deployed to Japan, but were then given seven to eight months of additional unit training before entering combat in December 1951 and January 1952. The other two Army National Guard divisions stayed in the United States for additional training for 14 months, after which time they were deployed to Europe. In 1951, four additional Army National Guard divisions, three regimental combat teams, and over 700 company-sized units were also mobilized. None was deployed to Korea. At the Korean War peak, 96,000 guardsmen (30 percent of the Army National Guard) were on active duty. Binkin and Kaufmann, 1989, *op. cit.*, pp. 41–43.

could fill out skeletonized active units or help man the training establishment. Therefore, call-up emphasis was placed on individual reservists who were not attached to organized units. The result was that non-drilling reservists were called while drilling units sat out the war. Most of the non-drilling reservists were World War II veterans, many of whom resented the "double jeopardy" in which they were placed. Complicating the matter further was a disjuncture between provisions for induction and provisions for reserve call-up. Reservists who were fathers, students, and skilled technicians were activated, while draftees were deferred on these very same grounds.

The Marine Corps Reserve and Naval Reserve experienced less difficulty. After mobilization, all Marine Corps Reserve ground combat units were disbanded and individual reservists were reassigned to active combat units as fillers and replacements. The Naval Reserve pretty much followed the same pattern, drawing individuals out of units as needed for the active force, retaining some units intact.

Activation of the Air Force Reserve Component was spastic at first. After the Chinese intervention in the war, Air Force Reserve Component mobilizations began in earnest. All told, some 45,594 Air National Guardsmen and approximately 121,000 Air Force Reserve members saw active duty between 1950 and 1953.³⁵

Unlike World War II mobilization in 1940–1941, mobilization for the Korean War was a partial mobilization. Not only did this push issues of equity to the forefront, it also made a mess of mobilization planning. The 1950 system was geared for total mobilization. The plan was to use regular forces first, followed by the National Guard, Organized Reserve units, and then the non-drilling "Volunteer Reserve." As seen above, it did not work that way. The largely improvised activation of individual reservists also revealed shortcomings in the pre-war management of the reserves.

The Armed Forces Reserve Act of 1952 tried to rationalize the system. Three reserve classes—Ready, Standby, and Retired—were established, differing essentially in their vulnerability to recall. The Ready Reserve—consisting of both organized units and unaffiliated individual reservists—was to be available upon a declaration of war by Congress or declaration of national emer-

³⁵Charles Joseph Gross, *Prelude to the Total Force: The Air National Guard, 1943–1969*, Department of the Air Force, Office of Air Force History, Washington, D.C., 1985, p. 62, pp. 59–65.

gency by the president; the Standby Reserve (individuals only) could be called only by Congress, and the Retired Reserve (also individuals) could be called only when no men with required skills were available in the first two pools. A man with less than four years of active service would spend his remaining time in Ready Reserve status, or he could volunteer to participate in the training program of a National Guard or Organized Reserve unit for three years, and then be transferred to the Standby Reserve for what was left. Thus, while there was an inducement to join organized reserve units, there was no obligation. Further amendments in 1955, 1957, and 1958 addressed the specifics of draft deferments, military service obligation, and required training periods that would bring experienced and untrained personnel into the reserve components.

Restructuring

The post-war active and reserve personnel structure of a world "superpower" was very different from the pre-war structure of an isolationist America. The definitive restructuring of National Guard and reserve forces took place during the Eisenhower Administration. At the end of that period, the unit strength of the Selected Reserves of the Ready Reserve was about four times that of the pre-war Army: 400,000 for Army National Guard and 300,000 for Army Reserve. In many ways, compared to the pre-war structure, the most remarkable change was the growth of the Army Reserve. It had changed from essentially a large pool of individual reservists to support and fill out a cadre Army, to a fully formed reserve force with combat units that could be mobilized much like the Army National Guard.

The Call-Ups

In his first State of the Union message, President John F. Kennedy announced that he had instructed the DoD to "reappraise our entire defense strategy." The administration aimed to shift defense planning from the strategy of massive nuclear retaliation to one of "flexible" nuclear and conventional "response." The first test of Kennedy's new policies came on July 25, 1961. In a nationwide address, President Kennedy underscored his determination to stand fast in Berlin by announcing that he would seek Congress' approval to add up to 300,000 men to the active forces, through a combination of expanded draft calls and reserve call-ups.

Like previous call-ups, the Berlin call-up of 1961 was not without its problems. A House Armed Services Committee (HASC) subcommittee noted areas of "serious deficiency," especially in the Army: "A significant portion of our present Army Ready Reserve Force is incapable of meeting the increased requirement for readiness now so essential to our national security." The committee was particularly critical that the "military departments had not prepared contingency plans which contemplated a partial mobilization and hence were unable to properly select units for recall."³⁶

The Naval Reserve call-up was generally smoother. Unlike the naval activations of 1940 and 1950, the Naval Reserve mobilized and was incorporated chiefly as units in 1961. The Air Force activation drew predominantly (21,000) from the Air National Guard.³⁷ While the manning side of the Air Force call-up was generally trouble-free, training and equipment were another matter.³⁸

The Berlin call-up also provided other important lessons that were reflected in the way the 1990 Desert Storm mobilization was handled. It was the first time that reservists were mobilized as a symbol of national resolve rather than an immediate instrument of combat power. Many reservists and more than a few in Congress asked, "If no fighting had taken place, nor was fighting imminent, why were reservists kept on active duty?" Issues of equity were also raised, as they had been during the Korean War. There were individual reservists who had not been in a paid drill status, but by virtue of the military service obligation they took on when they enlisted (or were inducted) were in the Individual Ready Reserve. They wondered why they were called, while paid drilling units were not.

McNamara's Reforms

The Berlin call-up had another effect: Secretary McNamara proposed to Congress substantial reductions in total paid-drill manpower strengths. McNamara announced a sweeping reserve reorganization in December 1964, including a proposal that the unit structure of the Army's two reserve components would be merged in the National Guard. Not surprisingly, the proposal was instantly controversial. Not only did Congress kill the merger

³⁶U.S. Congress, House, Committee on Armed Services, Subcommittee No. 3, *Military Reserve Posture*, Report of Subcommittee No. 3, 87th Cong., 2d sess., 1962, pp. 6657–6663.

³⁷See James L. Lacy, *Naval Reserve Forces: The Historical Experience with Involuntary Recalls*, Center for Naval Analyses, Alexandria, Virginia, 1986, pp. 8–10; and Gross, *op. cit.*, pp. 128–141.

³⁸Gross, *op. cit.*

proposal directly; it subsequently provided combat, combat support, and combat service support in both reserve components and enacted the Reserve Forces Bill of Rights and Vitalization Act of 1967, which, among other things, explicitly barred any administrative merger of National Guard and reserve components.

Vietnam

The role of reserves as an instrument of military policy and capability again came to the forefront in July 1965 as President Johnson contemplated the buildup for Vietnam. The Army staff's contingency planning for a major commitment in Vietnam had been built around the assumption of a large-scale reserve call-up. On July 10, McNamara and the Joint Chiefs of Staff (JCS) recommended a call-up of 235,000 members of the Army National Guard and Army Reserve.³⁹ The proposal for a reserve activation was motivated partly by military concerns, but also by political considerations, according to a later account by JCS Chairman, General Earle G. Wheeler:

We felt it would be desirable to have a reserve call-up in order to make sure that the people of the United States knew that we were in a war and not engaged at some two-penny military adventure. Because we didn't think it was going to be a two-penny military adventure by any manner or means.⁴⁰

Johnson decided against a reserve call-up, and in a televised address, he announced that monthly draft calls would be raised from 17,000 to 35,000. He said that, "it was not essential to order Reserve units into service now."⁴¹

The reasons for this "no reserves" decision have been a matter of considerable speculation.⁴² There were two official reasons.⁴³ First, a reserve activation would simply transfer the burdens of reassignment from the active forces to reserves, and through them, to thousands of civilian communities

³⁹Lyndon Baines Johnson, *The Vantage Point: Perspectives on the Presidency, 1963–1969*, Holt, Rinehart and Winston, New York, 1971, pp. 145–146.

⁴⁰Quoted in Larry Berman, *Planning a Tragedy: The Americanization of the War in Vietnam*, W.W. Norton, Boston, 1982, p. 126.

⁴¹Quoted in Richard B. Crossland and James T. Currie, *Twice the Citizen: A History of the United States Army Reserve, 1908–1983*, Office of the Chief, Army Reserve, Washington, D.C., 1984, p. 194.

⁴²See, e.g., Binkin and Kaufmann, 1989, *op. cit.*, pp. 48–53; Crossland and Currie, 1984, *op. cit.*, pp. 194–198; Lloyd Norman, "Anatomy of a Decision," *Army*, September 1965; David Halberstam, *The Best and the Brightest*, Random House, New York, 1972, pp. 592–594.

⁴³Johnson himself later wrote that he did not think McNamara and the JCS had made a persuasive case for a reserve call-up, or had taken adequately into account pending contributions of forces from South Korea and the Philippines. See, Johnson, 1971, pp. 147–148.

and workplaces. Second, the necessary expansion could be accomplished just as quickly by relying on existing active forces, plus induction and recruitment, to create new units.⁴⁴ There were clearly many factors that entered into the decision. Probably, the dominant reason was that Johnson definitely did *not* want to send the Congress and the American people the message that the JCS wanted sent. Johnson "was not about to call up the reserves because . . . [i]t would be self-evident that we were really going to war, and that we would in fact have to pay a price, which went against all the Administration planning; this would be a war without a price, a silent, politically invisible war."⁴⁵

The Pueblo Call-Up

The Johnson Administration relented on the reserve call-up issue in early 1968, but not on any grand scale. On January 25, two days after North Korea seized the U.S. intelligence ship *Pueblo*, Johnson ordered a reserve activation "to strengthen our position in Korea without diverting resources from Southeast Asia."⁴⁶ Six days after the *Pueblo* activation (January 31), the North Vietnamese launched their Tet offensive across much of South Vietnam. General Wheeler again raised the subject of reserve mobilization for Vietnam. On April 10, 1968, Johnson did authorize the activation of about 25,000 reservists.

As before, the Army call-up was troubled on several counts. Every one of the recalled units failed to meet minimal combat readiness standards. Nearly half of unit personnel were not fully trained or qualified, and 17 percent were totally unqualified for their assigned positions. Although combat readiness was, theoretically, the criterion for unit selection, there was no up-to-date readiness reporting system for the Army reserve components at the time; it had been suspended in 1966.⁴⁷

The Nixon Administration wanted to stabilize defense spending at about 7 percent of GNP, but as the American people soured on the Vietnam experience, Congress cut defense expenditures. On August 21, 1970, in a directive to the military services, Defense Secretary Melvin Laird stressed that "Within

⁴⁴New York Times, March 3, 1966, p. 16; Gerhardt, 1971, *op. cit.*, p. 273; and generally, U.S. Congress, Senate, Committee on Armed Services, Preparedness Investigating Subcommittee, *U.S. Army Combat Readiness*, Hearings, 89th Cong., 2d sess., 1966.

⁴⁵Halberstam, 1972, *op. cit.*, p. 593.

⁴⁶Johnson, 1971, *op. cit.*, p. 385.

⁴⁷Binkin and Kaufmann, 1989, *op. cit.*, p. 58.

the Department of Defense, economies will require reductions in overall strengths and capabilities of the active forces, and increased reliance on the combat and combat support units of the Guard and Reserve." Henceforth, he wrote, "A *total force concept* will be applied to all aspects of planning, programming, manning, equipping and employing Guard and Reserve forces [emphasis added]."⁴⁸

The approach set forth in Laird's August 1970 memorandum was decidedly less confrontational with Congress and the reserve community than that earlier taken by McNamara. At its core were four propositions. First, the services were directed to "provide and maintain combat standard equipment for Guard and Reserve units in the necessary quantities" in order to "increase the readiness, reliability and timely responsiveness of the combat and combat support units of the Guard and Reserve and individuals of the Reserve."⁴⁹

Second, while the reserves would retain their traditional reinforcement role in a general mobilization, they were to be manned and equipped in order to augment the active forces for (presumably) less severe emergencies as well. In Laird's words, "Guard and Reserve units and individuals of the Selected Reserve will be prepared to be the initial and primary source of augmentation of the Active Forces in any future emergency requiring a rapid and substantial expansion of the Active Forces."⁵⁰

Third, wherever missions, functions and units could be transferred from the active forces to the less-expensive reserves, this was to be done. As Laird's memorandum put it: "Emphasis will be given to concurrent consideration of the total forces, active and reserve, to determine the most advantageous mix to support national strategy and meet the threat."⁵¹

Fourth, in keeping with the administration's emphasis on allied contributions to their own and shared security, *all* appropriate resources—U.S. and allied—were to be taken into account in sizing and structuring U.S. forces.

Total Force Policy was particularly well received in Congress, and, on August 23, 1973, Secretary of Defense James Schlesinger stated, "The Total

⁴⁸Secretary of Defense Melvin R. Laird, Memorandum, "Readiness of the Selected Reserves," DoD, August 21, 1970, pp. 1-2. The memorandum is reprinted in *Congressional Record*, September 9, 1970, p. 30928.

⁴⁹*Ibid.*

⁵⁰*Ibid.*

⁵¹*Ibid.*

Force is no longer a 'concept.' It is now the Total Force Policy which *integrates* the Active, Guard and Reserve forces into a homogenous whole."⁵²

Restructuring, Again

If, by early 1974, the policy was settled, its implementation was not. Although the Total Force Policy implied that reductions in active force levels would be offset by greater use of the reserves, the active force reductions were not accompanied by increases in reserve manning. Moreover, by 1975 Secretary of Defense Schlesinger was telling Congress that, "In the aftermath of Vietnam and the changeover to the all-volunteer force, we basically went too far in reducing our active-duty ground forces."⁵³ There were limits, he told Congress, to how far reserve divisions could be substituted for active forces in the early stages of a major emergency. "[H]eavy reliance on the Guard and Reserve divisions for initial defense missions would be imprudent. . . . If we are to act responsibly toward the National Guard and Reserve, we should stop pretending that we can use all of them as full substitutes for active-duty ground forces."⁵⁴

In a return to Uptonian thinking, the Army now proposed to add three additional regular divisions without increasing active duty manpower, "one-third of the combat element of the divisions will be Reserve component units."⁵⁵ Four active divisions, including the three new ones, would be structured on a "roundout" concept: two active brigades would be rounded-out by a reserve brigade. The number of reserve divisions would be the same—"We are not advocating a change in the numbers of Reserve component divisions"—they would simply be used differently.⁵⁶

Roundout units were one part of the Army's reconfiguration beginning in mid-decade; the other was the transfer of support functions to the reserves. Congress—which had voiced concern for several years about the Army's

⁵²Secretary of Defense James R. Schlesinger, Memorandum, "Readiness of the Selected Reserve," August 23, 1973, pp. 1-2.

⁵³Department of Defense, *Annual Report to the Congress, Fiscal Years 1976 and 1977*, p. III-15.

⁵⁴Army planning had assumed that "high priority National Guard and Reserve divisions would achieve sufficiently high standards of combat readiness so that we could deploy them *almost as rapidly as our active Army divisions* [emphasis added]." Army and DoD revised estimates were that it would take at least 14 weeks after activation to deploy the eight Army National Guard divisions—with 10 of those weeks devoted to post-mobilization training. *Ibid.*, p. III-14.

⁵⁵U.S. Congress, House, Committee on Armed Services, *Department of Defense Authorization for Appropriations for Fiscal Year 1976 and 1977*, Hearings, Part 2, 94th Cong., 1st sess., 1975, p. 2091 [hereinafter HASC, 1975].

⁵⁶*Ibid.*, p. 2092.

combat support or "tooth-to-tail" ratio—cut 18,000 military support positions in Europe, but allowed the creation of an equal number of combat positions. By FY 1976, the Army told Congress, "part of the support elements to sustain active Army divisions in combat will be provided by the Army National Guard and Army Reserve."⁵⁷ The administration also sought, and Congress approved in 1976, legislative authority for the president to call to active duty up to 50,000 members of the Selected Reserve for a period of up to 90 days without a declaration of war or national emergency. William Brehm, Assistant Secretary of Defense for Manpower and Reserve Affairs, told Congress that enactment of the authority, "would assure the availability of the Selected Reserve under conditions short of a national emergency or declaration of war, *thus alleviating most active forces concerns in planning to use Reserve forces during future contingencies.*"⁵⁸

Like the Army, the Navy was concerned at mid-decade that cuts in active force levels were going too far. The Navy told Congress that, if the fleet was to continue to be forward deployed in peacetime, the Navy's force mix had to favor the active Navy, e.g., "[I]f the smaller fleet were expected to maintain a global, forward deployment at all times . . . it was difficult to see how many missions the Navy could shift from the active to the reserve forces."⁵⁹ The issue turned in part on the size and character of the Navy's mobilization requirements, on which the administration itself could not agree. A half dozen DoD or Navy studies between 1972 and 1978 calculated the mobilization number, variously, at 117,000, 102,000, and 92,000.⁶⁰ There was also an internal Office of the Secretary of Defense (OSD) study that recommended 52,000 and was the basis for the presidential budget submissions during this period. A truce of sorts was finally reached in late 1979, when yet another Navy study, involving extensive OSD participation, concluded that the requirement was not likely to be fewer than 87,500: "the number," Assistant Secretary of Defense Pirie points out, "not coincidentally, that Congress had directed the administration to maintain."⁶¹

By comparison, Total Force Policy seemed to fit the Air Force well: Typical was the pronouncement by David P. Taylor, Assistant Secretary of the Air

⁵⁷*Ibid.*, p. 2144.

⁵⁸*Ibid.*, p. 2059. [Emphasis added]

⁵⁹Patrick M. Cronin, *The Total Force Policy in Historical Perspective*, The Center for Naval Analyses, Alexandria, 1987, p. 14.

⁶⁰The various studies, and debates over them, are detailed in Cronin, *op. cit.*, pp. 29–35.

⁶¹Robert B. Pirie, "The All-Volunteer Force Today: Mobilization Manpower," in Goodpaster et al., eds., *Towards a Consensus on Military Service: Report of the Atlantic Council's Working Group on Military Service*, Pergamon Press, New York, 1982, p. 119.

Force for Manpower and Reserve Affairs in 1975: "The Air National Guard and Air Force Reserve have been fully integrated into the total Air Force over the past eight years."⁶²

Total Force Policy was endorsed by subsequent administrations: President Jimmy Carter said that "Under the total force concept reserve forces would perform critical missions in any future conflict. My administration is committed to ensuring that these vital forces are fully manned, well trained, well equipped and capable of rapid mobilization and integration into the active force in time of national emergency."⁶³ The Reagan Administration's support was demonstrated when Secretary Weinberger affirmed his "belief in—and full support of—the Total Force Policy. The Guard and Reserves are going to be full partners with their active counterparts in this Administration."⁶⁴ In June 1982, in a memorandum to the Services, Weinberger enunciated a "first to fight" policy for resource allocation. "Units that fight first shall be equipped first, regardless of component. . . . Our early deploying and employing Guard and Reserve units must have the equipment to perform their mission."⁶⁵

By the end of the Reagan Administration's second term, the "force mix" had shifted substantially. While the manpower strength of the active components had been increased by 98,000—from 2,040,000 in FY 1980 to 2,138,000 in FY 1989—Selected Reserve manpower grew by 344,000, or nearly 40 percent—from 869,000 to approximately 1.2 million in the same period.⁶⁶ Six of the eighteen active divisions included a reserve roundout brigade, and three others relied on one or more roundout battalions. About two-thirds of the Army's support capabilities were in its reserve components. The support it retained in its active forces was merely to sustain peacetime operations, and was "inadequate for large-scale or extended operations."⁶⁷

The heavy reliance on the reserves for particular missions became a particular concern for the Navy in 1987, when six naval reserve minesweepers were deployed to the Persian Gulf to support the Kuwaiti oil tanker reflagging op-

⁶²U.S. Congress, House, Committee on Armed Services, *Department of Defense Authorization for Appropriations for Fiscal Year 1976 and 1977 Hearings*, Part 2, 94th Cong., 1st sess., 1975, p. 2226.

⁶³DoD, *Review of the Guard & Reserve: A Framework for Action*, 1978 (b), *op. cit.*, p. 125.

⁶⁴Quoted in DoD, Reserve Forces Policy Board, *Annual Report Fiscal Year 1981*, p. 1.

⁶⁵Casper Weinberger, Memorandum, "Priorities for Equipment Procurement and Distribution," June 21, 1982.

⁶⁶Department of Defense, *Annual Report FY 1989*, p. 305.

⁶⁷U.S. General Accounting Office (GAO), *Reserve Force: DoD Guidance Needed on Assigning Roles to Reserves Under the Total Force Policy*, Washington, D.C., December 1989, p. 10.

eration. For whatever reason, the Navy did not call up the minesweepers' reserve crews. The Navy concluded that,

although these capabilities may not be required in peacetime and could be sourced by Naval Reserve personnel, crisis and non-mobilization contingencies could require these capabilities on short notice. The nub of the issue is: "How *available* is a certain capability to fleet commanders?" . . . In crisis situations short of mobilization, those assets are not readily available for operational employment. Navy is left to rely on volunteer Reservists, as was done with the frigates and minesweepers deployed in the Persian Gulf, to meet contingency requirements. This is a tenuous situation at best, and makes planning for the use of Naval Reserve forces for short-fused contingency operations almost impossible; this at a time when the probability of periodic U.S. involvement in contingency, crisis-response situations around the globe appears high.⁶⁸

Conclusion

With the development of the roundout divisions and the "first-to-fight" policy, 200 years of history has come full circle. The total force has characteristics of the expandable Army proposal of the last century and the fully formed reserve units proposed by Palmer. In the next chapter, we will examine how effective that policy was when tested during the Persian Gulf conflict of 1990–1991.

⁶⁸ U.S. Navy, *A Report on the Navy's Total Force*, FY 90, pp. 6-3, 1-4.

3. The Effectiveness of Total Force Policy During the Persian Gulf Conflict¹

Introduction

The Persian Gulf conflict provided the first major test of Total Force Policy. It was

- The first major conflict since Total Force Policy became a basic pillar of the nation's military strategy;
- The first large-scale call-up and use of reserve forces since the Korean War; and
- The first call-up using the new authority Congress established in 1976 to access the reserves.

Consequently, Operation Desert Shield/Storm (ODS/S) provides unique empirical data on calling up, mobilizing, and deploying reserve forces that were the products of Total Force Policy.

Purpose and Focus of the Evaluation

Part of this study's mandate was to assess the effectiveness of Total Force Policy during the Persian Gulf conflict. This evaluation also allowed us to derive lessons that informed the larger purpose of designing alternative force structures and mixes for carrying out expected U.S. military missions.

Much of the previously published material about the Persian Gulf conflict focused on operational aspects of the war. Our focus is on the various policies,

¹An expanded version of this chapter is contained in the companion publication, Marygail Brauner, Harry Thie, and Roger Brown, *Assessing the Structure and Mix of Future Active and Reserve Forces: Effectiveness of Total Force Policy in the Persian Gulf*, RAND, MR-132, 1992. Information about the Navy and Marine Corps is from John D. Mayer, James M. Jondrow, John V. Hall, Burnham C. McCaffree, and Ronald Rost, *Navy Active and Reserve Force Structure and Mix Study*, Center for Naval Analyses, 1992; and H. Dwight Lyons, Jr., William H. Sims, and John D. Goetke, *USMC Active and Reserve Force Structure and Mix Study*, Center for Naval Analyses, 1992.

plans, procedures, and practices that have been established to carry out Total Force Policy and how they affected *availability* and *readiness* of the reserve components during the Persian Gulf conflict. We took the structure of this evaluation from a statement of DoD policy :

We plan to support military contingencies with Guard and Reserve *units* and *manpower* when they can be *available* and *ready* within planned deployment schedules . . . [emphasis added].²

Sources of Information

To evaluate the availability and readiness of the reserve components, we interviewed people who were in strategic positions to observe the workings of Total Force Policy during the Persian Gulf conflict. We used past studies of Total Force Policy, histories and commentaries about reserve forces, the Congressional Record, and annual reports of the Secretary of Defense and of the Reserve Forces Policy Board. Information and data about the reserve components in the Persian Gulf conflict came from the numerous after-action reports and lessons-learned commentaries prepared by the DoD, the military services, Congress, and other organizations (e.g., the General Accounting Office, the Congressional Budget Office, and the Congressional Research Service). We drew on the first-hand experiences of staff members in RAND's Project AIR FORCE, RAND's Arroyo Center, and in the Center for Naval Analyses who studied the call-up, mobilization, and deployment of forces at headquarters, at mobilization stations, at the National Training Center, and in Southwest Asia (SWA).

Major Conclusions of the Evaluation

In addressing the effectiveness of that policy in ODS/S, we are aware that any conclusions and lessons for future planning must be moderated by the unique circumstances of the Persian Gulf conflict. The United States had a robust military force, and many of the combat and support formations used in the Persian Gulf came from forward-deployed active forces at high states of readiness. Moreover, we were allowed to build up forces over a substantial period; we were able to use existing infrastructure in Saudi Arabia; and the ground war was very short. As a senior U. S. commander put it,

²Cited in National Defense Authorization Act for Fiscal Years 1992 and 1993, Report 102-114, U.S. Senate Committee on Armed Services, p. 202.

Desert Storm was the perfect war with the perfect enemy. . . . We had the perfect coalition, the perfect infrastructure, and the perfect battlefield. We should be careful about the lessons we draw from the war.³

That said, we can draw the following general conclusions. Under Total Force Policy, the reserve forces are intended to be the initial and primary augmentation of the active forces in any contingency. Judged by the criteria of available and ready forces, Total Force Policy was effective during the Persian Gulf conflict. Specifically, the number and type of reserve units and individuals that were needed were available. The vast majority that were called were ready to deploy with minimal or no post-mobilization training. However, notable exceptions to this are instructive for future force planning.

In this chapter, we describe the context of the Persian Gulf conflict, assess the availability and readiness of reserve component units and individuals, and discuss the conclusions and lessons to be drawn from that assessment.

Putting the Persian Gulf Conflict in Context

On August 2, 1990, the day Iraq invaded Kuwait, the military force structure of the United States was the product not only of Total Force Policy, but also of military planning that had focused for over 40 years on a potential global conflict with the Soviet Union. The common planning assumption was that in the event of war there would be full—and fast—mobilization of reserve forces. Congress had provided the president with the authority to have a “phased” call-up of reserve units without declaring a national emergency. Yet, military planning for both the global and lesser regional contingencies assumed that the United States would move at least to partial mobilization within a matter of days.

The Persian Gulf conflict did not follow that script. Instead, the president exercised the “Section 673b” authority to implement a slow, rolling call-up. This slow call-up affected the availability and readiness of forces, as well as military plans and planning for the contingency. A brief description of the legal authority for reserve call-up is important for understanding how the mobilization played out and the effects it had.

³As quoted in *Defense for a New Era*, p. 3.

Legal Authority for Accessing Reserve Forces

There are four major means for making reserve forces available—accepting volunteers, partial mobilization, full mobilization, and presidential call-up for operational missions.⁴ The first three existed before Total Force Policy. The newest, the “Section 673b” authority, was first granted in 1976 and is especially important to the story of mobilization during ODS/S.

Volunteers are available through Title 10 Section 672(d). A member of a reserve component may be ordered to or retained on active duty with his/her consent and, in the case of the National Guard, with the consent of the governor.⁵ Reserve units and individuals are available at **partial mobilization** through Title 10 Section 673. Section 673 allows the Service Secretary or designee to activate reserve component units and individuals involuntarily during a time of national emergency declared by the president, or when otherwise authorized by law, for not more than 24 consecutive months. No more than 1,000,000 members of the Ready Reserve may be on active duty, without their consent, at any one time.

Title 10, Sections 263 and 672(a), makes reservists available at **full mobilization**. Section 263, *Basic policy for order into Federal service*, states that when Congress has determined that national security requirements are not sufficiently met by the active component forces, it can order reserve component forces to active duty and retain them as long as necessary. Section 672(a), empowers the Service Secretary to activate any reserve unit or individual involuntarily once Congress has declared war or a national emergency.

Because Total Force Policy relies on reserves as the initial and primary augmentation for active forces, a need was recognized in the mid-1970s to make reserves available beyond voluntarism and without a declaration of a national emergency. Section 673(b) was the result. First established in 1976, it was modified twice in the 1980s. Today, Section 673(b) allows a president to call up as many as 200,000 reserves, for no more than 180 days, to augment operational missions, without the declaration of a national emergency.

⁴There is an additional authority for mobilization of reserves in peacetime—Selective Mobilization (Title 10 USC 331, 332, 333; Title 14 USC 172). This activation of reserve components is in response to a domestic emergency.

⁵A subsection was added to the original law in 1986 (10 USC 672(f)) that constrains a governor’s authority to withhold consent for active duty to be performed outside the continental United States. “The consent of a Governor . . . may not be withheld (in whole or in part) with regard to active duty outside the United States, its territories, and its possessions because of any objection to the location, purpose, type, or schedule of such active duty.”

Having a mechanism for calling up reserve units without going to Congress has two important effects. First, it allows the president to "augment the active forces with the Reserves for operational missions without having to declare a full-scale national emergency, with all the attendant *international* and *domestic* implications this can have"⁶ [emphasis added]. Second, 673(b) is a complement to Total Force Policy. It makes the shift of forces from the active to the reserve component more acceptable to military planners—especially those concerned about the problems inherent in relying on reserve mobilization to provide needed forces. Clearly, "if it is assumed that the Section 673(b) call-up authority will be used to meet deployment requirements in major contingencies, it is much easier to make reductions in the size of the active force."⁷

The Forces Available for ODS/S

The configuration of U.S. forces prior to ODS/S reflects Total Force Policy, as well as military planning for the Soviet threat. The U.S. force structure available to the president in the summer of 1990 had been built, trained, and equipped to face the Soviet Union in a global conflict. Although the Cold War was effectively over, the "build-down" of U.S. forces had barely begun.

When Total Force Policy was first formulated, the Selected Reserve end-strength was 28 percent of the active and reserve component end-strength. By the time of the Persian Gulf conflict, it was 36 percent overall. However, the percentage differed across Services. In 1990, the Army Selected Reserve components were roughly equal in size to the active Army, while the Air, Naval, and Marine reserve components were only about one-third, one-fourth, and one-fifth the size of their active components, respectively.

The Services also differed in the percentage of component types they put in the reserves. Structure and missions found in the Marine Corps Reserve are almost a mirror of the active forces. Thus, reserve component units can easily augment and reinforce a Marine Air-Ground Task Force; the Marines can "use up" the active forces before the reserves need to be called. In contrast, in the Army, over 50 percent of combat forces and 67 percent of aggregate combat support and combat service support (CS/CSS) units were in the Army reserve components in 1990. For some functions, e.g., Civil Affairs and

⁶General Counsel of the Department of Defense, Letter to President of the Senate, April 30, 1975.

⁷DoD, 1990, *op. cit.*, p. 48. This report also stresses that excessive reductions in active forces could leave only the option of an involuntary call-up for even the most minor contingencies.

Supply and Service, more than 95 percent were reserves. Consequently, for a contingency requiring large forces, like the Persian Gulf conflict, the Army needs to activate reservists for support very early.

In 1990, conventional land forces included 18 active Army divisions. The Army's reserve components had 10 divisions and seven brigades and five battalions used to round out 9 of the active divisions. The U.S. Marine Corps (USMC) had three active divisions, aircraft wings, and support elements for use in three Marine Expeditionary Forces, along with one reserve division, aircraft wing, and support elements. Air Force tactical air forces had aircraft (F-16, F-15, F-117, F-111, F-4, A-10, and A-7) equivalent to more than 36 tactical fighter wings (24 active component and 12 reserve component), each equipped with 72 combat aircraft, as well as additional reconnaissance, support, and warning and control aircraft. The Navy maintained 13 active and two reserve carrier air wings composed of a mix of combat and support aircraft. Naval forces contained 14 carrier battle groups, two battleship surface action groups, and 10 underway replenishment groups.⁸

In sum, under Total Force Policy, the president had a formidable military force to use in ODS/S and legal authorities that allowed him to use mobilization as an instrument of diplomacy, while remaining attentive to the domestic political situation. However, the growing reliance on the reserves meant that early access to some reserve units would be necessary to meet some needs in a contingency—especially for support services. Military planning prior to the Persian Gulf conflict largely assumed that early mobilization would take place. Even the incomplete contingency plans for Southwest Asia assumed an immediate presidential Selected Reserve call-up of reserves and partial mobilization. Such assumptions established expectations that the reserves would be called early in any conflict. However, with the elimination of the Warsaw Pact as a military threat and with the drawdown only beginning to make available trained and ready U.S. forces stationed in Europe, the need for certain types of reserve units, particularly combat units, was greatly reduced.

⁸Richard Cheney, *Annual Report to the President and the Congress*, Department of Defense, January 1990, p. 3.

The Availability of the Reserve Components in ODS/S

The availability of reserves in ODS/S was affected by the slow, incremental call-up that we mentioned above, which is shown in Figure 3.1.

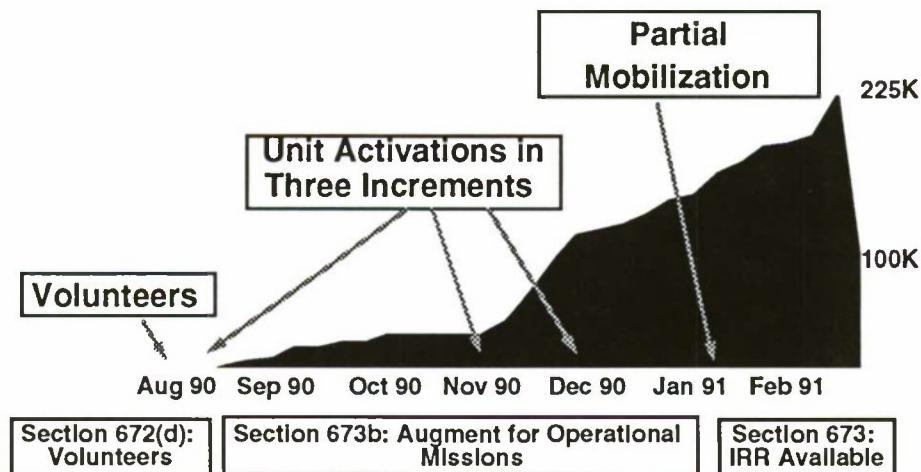


Figure 3.1—Phases of Reserve Mobilization

As the figure shows, there were three phases of reserve mobilization in ODS/S. Our discussion is organized around those phases.

Volunteer Period: August 2 to August 21

Between August 2, 1990, when Iraq invaded Kuwait, and August 22, when reserve mobilization began, reserve forces were needed, primarily to help with deployment of the active forces. For the Air Force, 64 percent of the tactical airlift, half the strategic airlift, and much of the air refueling and maintenance capability are in the Air Reserve Component (ARC). For the Army, support for port operations, military police companies, military intelligence units, and water purification and communications skills are mainly in the reserves. The Navy had an immediate need for reservists to support the military sealift command. All these capabilities were needed in August. Without a formal call-up, the only available ways to fill them were creative use of reserve training time and volunteers. The Services used both.

In ODS/S, a large number of volunteers stepped forward. In the Air Force, for example, the pool of those willing to volunteer was about double the

number allowed to volunteer. However, there were problems with reliance on volunteers: the Services lack explicit policies and plans for using volunteers; those who volunteered did not always have the needed skills; when individuals volunteered, their home units sometimes needed manpower when later mobilized.

Selected Reserve Unit Period: August 22, 1990–January 17, 1991

Between August 2 and August 22, the Chairman of the Joint Chiefs of Staff (CJCS), Commander in Chief of Central Command (CINCENT), and the Services conducted crisis planning for deployment of active forces and for mobilization and deployment of reserve forces. One objective was to determine the number, types, and specific reserve component units that would be called to the theater of operations and as backfill for deployed active units in the continental United States (CONUS) and other theaters. On August 22, the president implemented Section 673(b) for the first time since its enactment.

The Initial 673(b) Call-Up. The emphasis in the August 22 call-up was on *minimum essential augmentation*. The goal was to deter the Iraqi forces, while buying time to give the sanctions against Iraq a chance to have a significant effect. A total of 48,800 reservists were authorized for activation across the Services. Reserve units called up under Section 673(b) were activated for a period of only 90 days. (A second 90 days was available at the discretion of the president.) Thus, units activated at the end of August were initially committed only until the end of November.

The types of units called reflected the CINC's priority and theater requirements to establish an initial deterrent force of combat units with lift-constrained, minimal support structure. This guidance translated into plans for Selected Reserve units from the Army that were primarily combat support or combat service support that could assist in the deployment of the active combat forces already under way, and only a small number of specific CS/CSS units with critical skills were initially deployed to SWA. The Air Reserve Component provided Central Command (CENTCOM) staff augmentation, capabilities for expansion of the critically needed strategic airlift, and the logistics/maintenance support for refueling and high-priority in-theater support. Navy reserve requirements were to support deployment of forces, shipping, and security. Call-ups were primarily of medical staffs to backfill U.S. facilities, to operate fleet hospitals, and to expand the capacity of the two hospital ships. The Commandant of the Marine Corps decided that

active forces would be used for the first 60 days of the contingency, but reserve forces should "stand by" to be activated after that time.⁹

In the Army, specific units were selected on the basis of three criteria: (1) They had to meet the CINC CENT requirement.¹⁰ (2) They had to meet readiness deployment standards. (3) Whenever possible, they were to be associated with an active unit that was already scheduled for deployment.¹¹ The first two were clearly dominant and this was apparent in the controversy that arose over Army National Guard (ARNG) combat maneuver units.

While the preliminary, doctrinal 88,000 call-up list developed by Army Headquarters and Forces Command (FORSCOM) included the ARNG roundout brigades associated with the active Army divisions that were deployed to the Persian Gulf, the final August 22 call-up list did not include any combat forces.¹² The reasons were that (1) the CINC's priorities meant that the full 25,000 allotment had to be consumed in critical CS/CSS units and (2) the Secretary of Defense had precluded the Army from using the initial call-up for reserve component combat units, because active combat units were readily available.

When it became known that this initial list did not contain any reserve component combat units, members of the Army National Guard and Congress reacted.¹³ They had expected that reserve component combat units would be called. For example, the HASC Chairman and members stated that "The Army National Guard roundout brigades are supposed to be trained and ready so that they can be mobilized and begin deployment in a relatively short period of time—in the case of the 48th Mechanized Brigade, within 30 days from the time they are mobilized."¹⁴

⁹CMC, *Total Force Contingency Plan Short of Mobilization*, Message 242010Z, August 1990.

¹⁰General Schwarzkopf noted in his autobiography that, "I knew precisely what we needed: truck drivers, stevedores, ammunition handlers, telephone installers, mechanics—workers to take on the nitty-gritty tasks of supporting a deployment in a combat zone. The hard part was getting the message through to some of the people in Washington." General H. Norman Schwarzkopf, *It Doesn't Take a Hero*, Bantam Books, New York, 1992, p. 323.

¹¹HASC discussions with Army Deputy Chief of Staff for Operations (DCSOPS) planner.

¹²NDRI discussion with Army planners.

¹³Army National Guard, *After Action Report: Operation Desert Shield Operation Desert Storm*, Department of Defense, p. 6.

¹⁴Les Aspin, Beverly Byron, and G.V. (Sonny) Montgomery, *Iraq, Saudi Arabia and the Reserve Components: Missing Lessons for Future Force Structure*, House Armed Service Committee, October 15, 1990, p. 6.

Secretary of Defense Cheney responded to a letter from the House Armed Services Committee by saying that he had not called the ARNG units for the following reasons:

First, my senior military advisers have not advised me that the call-up of such units is necessary at this time. Secondly, the statutory time limits on the use of Selected Reserve units impose artificial constraints on their employment.¹⁵

The Army also noted that given the post-mobilization "training . . . such organizations (the roundout brigades) require, the cost effective feature of these forces which makes them a viable structure alternative in peacetime is reversed upon call-up when their costs for activation, deployment, and stand-down are for so little productive time and when there are active units readily available."¹⁶

The Secretary of Defense's initial decision and response to the Congress sparked a continuing debate. Members of the Army National Guard expressed concern that their expectations of being mobilized and deployed with their active component parent division had not been met. Their concerns were seconded in Congress:

The men and women in our National Guard and reserve units work hard to serve their country. The suggestion, unintended or not, that their work is neither fully appreciated or really needed in time of hostilities would have a disastrous influence on morale and performance. The failure to make greater use of reserve units in this crisis raises the broader question of when—and even whether—they would be used in the future. In Operation Desert Shield, the Department of Defense has had a unique opportunity to test the reserve system—including combat, combat support, and combat service support units—as part of the Total Force. To this point [October 1990] the Pentagon has chosen not to do so. . . . If the reserve component roundout units are not to be used, or are deemed unusable, when a short-notice war appears possible, then the viability of the whole roundout concept may be considered suspect. This would carry profound implications for the organization of the Armed Forces of the United States in the future.¹⁷

As a general rule, the Air Force tried to meet requirements first with active units, then reserve units. Selection of specific reserve units to be mobilized

¹⁵Army National Guard, *op. cit.*, p. 6.

¹⁶Desert Shield Information Paper, September 14, 1990.

¹⁷Aspin, et al., *op. cit.*, pp. 6-7.

was based upon the CINCCENT requirements and priorities. Major Commands (MAJCOMs) considered conversion status¹⁸ and compatibility of unit equipment with assets in the theater to ensure the maintainability of the equipment. The Navy staffed validated CINC requirements within the headquarters, and the CNO approved selection of units.

The Second Call-Up of Selected Reserve Units. In response to escalation of events in the Persian Gulf, the United States took specific action to move from a defensive to an offensive position. On November 5, Congress temporarily amended 673(b) to allow Selected Reserve combat units to serve for 180 days, with a possible extension of another 180 days, removing one of Secretary of Defense Cheney's stated reasons for not calling Army National Guard combat brigades. On November 8, the president announced that he intended to provide CINCCENT with a combined arms offensive capability by deploying additional reinforcements from Europe and the United States, most notably the VII Corps, which the changing situation in Europe made more available. At the same time, the Secretary of Defense announced that roundout brigades would be called and trained to the same standards as active units before they would be deployed.

The Army, USMC, and Air Force each activated reserve component combat units. Large combat units of the Naval Reserve such as Naval Reserve Fleet frigates or reserve carrier air wings were not called. The Army mobilized three ARNG roundout brigades and two field artillery brigades. The roundout brigades entered into a period of extended post-mobilization training. The artillery units, requiring less post-mobilization training were scheduled for deployment in late December and early January. The Air Force activated three Air Reserve Component combat squadrons (two Air National Guard F-16 units and one Air Force Reserve A-10 unit) to "demonstrate the Total Force concept"¹⁹ in ODS/S. No post-mobilization validation or significant additional training was required. The USMC called up key combat elements of the 4th (Reserve) Marine Division and Aircraft Wing, which included infantry, artillery and tank units to augment and reinforce forces already deployed.

The Third Call-Up of Selected Reserve Units. By the end of November, the plans were complete for additional reserve units to provide the Army CS/CSS for the reinforcing corps from Europe and to meet the requirements

¹⁸If a unit was not combat ready due to conversion or other problems, it was not considered for mobilization.

¹⁹NDRI discussions with senior Air Force leadership.

for theater-level support in SWA. The Secretary of Defense authorized a third call-up under the provisions of 673(b). This brought the number of reservists authorized to be on active duty to 188,000: 115,000 soldiers, 20,000 airmen, 30,000 sailors, and 23,000 Marines.

Reviewing the five-month period when the reserve call-up was based on the authority in Title 10 U.S.C., Section 673(b), it appears that the law was used as intended to access needed reserve forces, while maintaining political and diplomatic leverage. Further, the reserves were available and reported promptly when called to duty. However, several problems did emerge.

First, the lack of a validated operational plan (OPLAN) caused planners many problems. For example, Army reserve component units were deployed through an *ad hoc* process that was not based on pre-existing associations with active units. This required that new relationships be forged in the tense environment of contingency planning and execution.²⁰

Second, plans were based on the assumption that presidential Selected Reserve call-up would take place at the beginning of a crisis. The phased call-up of reserve units, as well as the restriction of how many could be activated, affected the deployment and organization of forces in the theater. Some reserve units that could have been used for logistics in early August were not made available, so active duty personnel assumed the role that the reservists could have played.

Third, by not moving quickly to partial mobilization, the call-up did not give planners, particularly in the Army, access to individual reservists in the Individual Ready Reserve (IRR). In peacetime, reserve units are frequently not authorized their full wartime strength requirement. Further, members of reserve units who have not completed basic training are not deployable. Thus, plans called for units to "cross-level" personnel by taking people from the IRR. However, the IRR was not available until January 18—long after many reserve units had mobilized and deployed. Thus, for those units that were understrength and needed additional personnel prior to deployment, added strength before activation came from other Selected Reserve units and individuals and after mobilization from active personnel. Cross-leveling in this fashion allowed some units to deploy but degraded the readiness of re-

²⁰The Army National Guard believes that when CAPSTONE relationships were preserved in ODS/S, the ARNG units were able to perform their missions as planned, and the integration of active and reserve units was accomplished with greater ease than when such relationships were not followed. NDRI discussions with senior Army National Guard personnel.

maining units. Other understrength units were deployed at lower manning levels consistent with minimum deployment criteria.

Fourth, there was a great deal of confusion about why some reserve combat units were called and others were not called. This intensified long-standing animosities between active and reserve personnel and resulted in political tension between the administration and Congress. Reserve members were convinced that they were being discriminated against.

The Partial Mobilization Period—After January 18, 1991

As the January 15 United Nations deadline passed without the appropriate withdrawal of Iraqi forces from Kuwait, CENTCOM completed final preparations to initiate a military offensive. On January 17 in the early morning hours the coalition initiated the air offensive with an attack on Baghdad. The next day, the president authorized partial mobilization, which allowed the Defense Department access to the Ready Reserve, which included all units and individuals of the Selected Reserve and the IRR. The Secretary of Defense authorized activation of as many as 360,000 additional reservists from the Ready Reserve for one year and extended the tour of all formerly activated reservists to one year.²¹ The IRR was a sizable pool, primarily of previously active duty military personnel with a host of specialized skills. More important for Army planners, it also contained recently separated personnel who, with little post-mobilization training, could be used as unit fillers and, in the event of casualties, could become combat replacements.

Prior to ODS/S, there had been a great deal of speculation that many of the individuals in the IRR would not be located, much less be able to perform their military duties. An earlier test of the recall system suggested that only about 50 percent of the IRR would be available for active duty.²² In fact, 75 percent of those ordered to active duty reported to mobilization stations, and most of them were able to perform their duties as required. The Army soldiers that were called were those that had most recently been separated—the so called RT-12—to provide a ready source of trained or easily retrained manpower.²³

²¹Department of Defense, *Conduct of the Persian Gulf War: An Interim Report to Congress, 1991*, p. H-9.

²²Discussions with Army staffers on Exercise "Nifty Nugget."

²³*Ibid.*

The Readiness of the Reserve Components in ODS/S

As the reliance on reserve forces has increased, the question of their readiness has become vitally important in force structure and contingency planning.

Readiness is one of the four components of military capability. The others are force structure, modernization, and sustainability. Readiness, as defined by the Joint Chiefs of Staff,²⁴ is the ability of forces, units, weapon systems, or equipments to deliver the outputs for which they were designed (including the ability to deploy and employ without unacceptable delays).

However, defining readiness is easier than measuring readiness. The problem of measurement is well described by the Reserve Forces Policy Board (RFPB).

There is no simple means for measuring readiness. An objective and uniform measuring system for reporting unit readiness does not exist. As a result, the Status of Resources and Training System is used by some as an erroneous and misleading means for measuring readiness. However, a unit, which is resourced fully with personnel and equipment and trained properly in individual and unit skills, should be ready to perform its mission. SORTS [Status of Resources and Training System] category levels alone do not indicate a unit's readiness. Tangible factors such as numbers of personnel, training, equipment, facilities, and funding all impact on readiness. Intangible factors such as leadership; morale; cohesiveness; skill retention; and physical fitness, strength, and stamina of individual members also affect unit readiness. In addition to SORTS, the results of mobilization tests, readiness evaluations, operational readiness inspections, and other criteria must be examined to estimate the combat readiness of a reserve component unit. There is no single number that can be pointed to as representing the readiness of a unit, or an entire reserve component. The ability to mobilize and deploy forces must also be considered when analyzing military capabilities of the reserve components.²⁵

The strategy for reserve component training must be to achieve a satisfactory level of competency prior to mobilization. It is not necessary, in all cases, to train to the levels required for active forces. However, units and individuals must be sufficiently well trained that they can be brought up to required

²⁴Joint Chiefs of Staff, Pub. 1-02, December 1, 1989.

²⁵Reserve Forces Policy Board, *Reserve Component Programs Fiscal Year 1988*, February 22, 1989, p. xxv.

readiness in a reasonable time after mobilization. Otherwise, having them in the reserves may be neither cost-effective nor militarily prudent.

Readiness of Army Reserve Components Prior to the Persian Gulf Conflict

The CAPSTONE program incorporates peacetime command and control relationships and wartime mission relationships. Mechanisms under the CAPSTONE program, e.g., directed training associations such as affiliation and roundout, were used to increase reserve unit readiness through the integration of active and reserve forces. There were conflicting perceptions about how ready Army reserve components were prior to the Persian Gulf conflict—both within and outside the Services. For example, in 1986, Major General Robert Wagner, the commander of the Army's Reserve Officer Training Command, stated that roundout units were not "prepared to go to war in synchronization with their affiliated active duty formations. The Army is deceiving itself to state otherwise."²⁶ Wagner questioned reserve component training and deployability, leadership, and the echelon at which roundout is applied. On the other side (and shortly thereafter), the vice chief of staff of the Army stated in a speech to the National Guard Association that the National Guard has "demonstrated conclusively to our friends and potential enemies its deployability . . . you are ready."²⁷

Various external auditors and researchers examined aspects of readiness in detail; Binkin and Kaufman at Brookings questioned the credibility of Total Force Policy and concluded that, considering deficiencies in equipment and the amount of training reserve components receive, the Army, for example, "is not as ready as the rhetoric implies."²⁸ In a series of reports beginning in June 1989 and ending prior to the Persian Gulf conflict,²⁹ the General Accounting Office identified numerous shortfalls and suggested improvements. The RFPB stated, in February 1989, that, "Overall limiting factors to DoD reserve component readiness in FY 88, in order of total number of units affected, were personnel shortages, individual skill qualification, equipment

²⁶Larry Carney, "Reserve Not Ready to Fight, General Says," *Army Times*, September 29, 1986a, p. 3.

²⁷Larry Carney, "Reserve Update 'On Track,' Thurman Says," *Army Times*, October 27, 1986b, p. 20.

²⁸Binkin and Kaufman, 1989, *op. cit.*

²⁹General Accounting Office, *Army Training: Management Initiatives Needed to Enhance Reservists' Training*, NSIAD-89-140, June 1989, and General Accounting Office, *Army Reserve Components: Minimum Essential Equipment for Training Has Not Been Effectively Managed*, NSIAD-90-136, May 1990.

condition, equipment on-hand, and training.³⁰ The RFPB also noted that "Reserve component units are expected to maintain readiness in less than 20 percent of the time available to active component units. Time spent on administrative functions and other activities that do not contribute to readiness should be reduced to increase wartime mission training."³¹ Other problems include personnel and force structure turbulence, inaccessible training areas and ranges, and inadequate standards for and evaluation of readiness.

The Readiness of Army CS/CSS Units During ODS/S

The Department of Defense in its report of the Persian Gulf mobilization concluded: "Most units of the Reserve components were ready to be deployed on schedule and the timing and sequence of their deployment was determined by the needs of the theater commanders and similar factors, rather than by post-mobilization training requirements."³² Prior to ODS/S, reported SORTS data, which is an indicator of readiness, showed that reserve component CS/CSS units were about as ready as similar active units.³³ About 70 percent of all active and reserve units were at C-3 or higher, which means that they were ready to accomplish at least a major portion of their wartime mission.³⁴ About 10 to 20 percent of units were at C-4. About 15 percent of units reported C-5. The readiness of those reserve component units that were actually called up was somewhat higher.

One of the keys to reported CS/CSS readiness was the extensive cross-leveling that occurred even before units were formally called up. However, the effect of this was seen in later mobilizing units, which reported at lowered readiness levels than units mobilized early in ODS/S.³⁵ Moreover, by late November, the inability to use the IRR was creating more of a problem for the Army.³⁶

Mobilization and deployment of CS/CSS units was fairly straightforward. Typically, a unit spent 3 days at home station before reporting to the mobilization station. At the mobilization station, the unit usually focused on

³⁰Reserve Forces Policy Board, 1989, *op. cit.*, p. xxv.

³¹*Ibid.*, p. 1. Also see Marygail K. Brauner and Glenn Gotz, *Manning Full-Time Positions in Support of the Selected Reserves*, RAND, R-4034-RA, 1991.

³²DoD, *Conduct of the Persian Gulf War*, *op. cit.*, p. H-13.

³³See Craig Moore et al., *Measuring Military Readiness and Sustainability*, RAND, R-3842-DAC, 1991, pp. 10-18.

³⁴See the discussion of the SORTS rating system in Brauner et al., 1992, pp. 45-47.

³⁵Department of the Army, *Integrated Army Mobilization Study (IAMS) (U)*, February 5, 1992, p. J-8-1.

³⁶HASC discussions with Army planner.

nuclear, biological, and chemical (warfare) (NBC) training, weapons qualification, common task training, and physical conditioning. Minimum collective training was provided except where units were modernized or provided added equipment.³⁷ On average, units that arrived at the mobilization station in less than C-3 status generally met this standard within 12 days. Ten percent of these units had personnel readiness problems, primarily a mismatch between a duty military occupational speciality (MOS) and a primary MOS, referred to as a MOSQ problem. Only 3 percent had collective training problems.³⁸

In sum, pre- and post-mobilization actions and a deployability standard of C-3 made Army reserve component CS/CSS units deployable without unacceptable delay. Readiness of these units was not a detriment to meeting CINCCENT's in-theater arrival times.

The Readiness of Army Reserve Component Combat Units During ODS/S

Large combat maneuver units in the Army National Guard were not initially mobilized. The original "88,000" doctrinal mobilization plan had called for activation of three roundout brigades. But, as noted above, in the first call-up under 673(b), the 25,000 allotment for the Army was used for CS/CSS reserve component units. As a result, two active brigades replaced two of the ARNG roundout brigades in the two divisions that deployed to SWA "on essentially a no-notice basis in August and September 1990."³⁹ Lead elements of the 24th Division arrived in Saudi Arabia on August 27, 1990. The 1st Cavalry Division began loading for deployment on September 6.⁴⁰

About 80 percent of all Army combat units, active and reserve, were rated C-3 or higher before ODS/S. However, the Army used a deployment standard of C-1 for both active and reserve combat units during ODS/S. The unit selected to replace the 48th as part of the 24th Division was the 197th Brigade at Fort Benning. While not at the new deployability standard at selection, this unit was C-1 "across the board prior to deployment as well as after." The active unit selected to replace the 155th Brigade was the 1st Brigade of the 2d

³⁷HASC discussions with National Guard Bureau planner.

³⁸Thomas F. Lippiatt et al., RAND, personal communication.

³⁹General Accounting Office, "Army Training," unpublished paper, 1992, p. 1. The GAO made available to us unpublished data and results of their analysis of the readiness of the three Army National Guard roundout brigades and the active units that replaced them in the early deployment to Saudi Arabia.

⁴⁰DoD, *Conduct of the Persian Gulf War, op. cit.*, p. E-19.

Armored Division. While it did not have a separate Unit Status Report (USR) evaluation (this is typical for a divisional brigade; separate brigades do report via the USR), FORSCOM judged it to be high C-2 or low C-1 when assigned to the 1st Cavalry Division. It was built to C-1 at Fort Hood by drawing people and equipment from active units there.⁴¹

When Secretary of Defense Cheney announced the call in November of the ARNG brigades, he cited the "opportunity to train to active component standards." The issue of post-mobilization training to the C-1 standard against the expected tasks and conditions of the Persian Gulf then became dominant. Prior to mobilization and based on SORTS data, 30–40 days of post-mobilization was to be expected. The Department of the Army Inspector General (DAIG) noted, however, that "All of the brigade's performance of mission essential tasks and demonstrated readiness after activation was generally lower than planners and trainers had anticipated."⁴² The General Accounting Office reviewed the active Army brigades that replaced the Army National Guard combat roundout brigades and concluded, at the time of their deployment to the Persian Gulf, that the replacement brigades demonstrated a higher level of proficiency for almost every objective measure of individual and unit proficiency than the roundout brigades.⁴³

Training plans for the ARNG brigades had initially been formulated in August and September. Since the 24th Division, with which the 48th had a roundout directed training association, had deployed, the Commanding General of Second Army was assigned the task of validating the 48th Brigade. In his assessment,⁴⁴ training time would be a function of *need* for the unit as well as readiness. "Since the CINC had not established a requirement for roundout brigades, the Army had more time to train the 48th Brigade, placing greater emphasis on cognitive skills versus the purely mechanical."⁴⁵ However, executing these plans was hindered by the initial lack of individual preparedness. For example, individuals who needed to meet Class III or Class IV dental standards or who needed over-40 physicals were not training while they accomplished these items. These deficiencies were

⁴¹HASC discussions with FORSCOM and 2d Army.

⁴²DAIG, *Special Assessment*, *op. cit.*, p. 2-7.

⁴³Draft report and briefing, "Substitution of Active Brigades for National Guard Roundout Brigades in Operation Desert Storm," provided to RAND by GAO on September 2, 1992.

⁴⁴The Commander of FORSCOM and the Department of the Army Inspector General made similar assessments.

⁴⁵HASC discussions with Commanding General, 2d Army.

overcome between call-up and February 15. The brigade did improve, and individuals in the 48th were 90 percent deployable on February 15.

Ninety-one days after call-up and as the war ended, the 48th brigade was judged to be combat ready after observation of its performance at the National Training Center (NTC).⁴⁶ This 91 days included 74 collective training days.⁴⁷ The DAIG estimated that an additional 24 days would have been spent in stand-down from training, movement, and transportation for a total of 115 days from call to deploy for the 48th. "This is an unprecedented achievement, when compared to the previous historical experience of mobilizing National Guard combat units of brigade or division size."⁴⁸ However, compared to rhetoric and expectation prior to ODS/S, the achievement seems less.

Readiness of Air Reserve Component

The experience of the Air Reserve Component (ARC) combat forces was quite different from that of the Army Reserve maneuver brigades. "Reserve units, aircrews, maintenance crews and support personnel required little to no post mobilization training before performing their respective missions. All activated reserve flying units mobilized in 24 hours or less, and were prepared to deploy or did deploy in less than 72 hours."⁴⁹

There seem to be three primary reasons for this success: First, the Air Force holds its reserve units, both Air National Guard and Air Force Reserve, to the same readiness standards expected of active units. In FY 1990, Air National Guard units underwent 94 inspections by their active gaining command; all units passed. Air Force Reserve units are annually required to test their mobilization procedures and in-processing plans. Also in each fiscal year, a combination of Unit Effective Inspections and Operational Readiness Inspections is conducted on designated units.⁵⁰

Second, the Air Force provides its reserve component with funds, equipment, and full-time personnel that allow for greater training opportunities than the

⁴⁶Had the brigade(s) been mobilized on August 22 and had a similar activation and training regimen as that of the later activation in December been followed, the 48th could have been available for deployment sometime in early December.

⁴⁷HASC discussion with Commanding General, 2d Army.

⁴⁸Goldich, *op. cit.*, p. 23.

⁴⁹DoD, *Conduct of the Persian Gulf War*, *op. cit.*, p. H-15.

⁵⁰Reserve Forces Policy Board, *Reserve Component Programs Fiscal Year 1990*, March 2, 1991, pp. 101-102.

Army does. The Air Force provides fewer flying hours to the Air Reserve Component than to active units. However, it still gives the reserves relatively more training hours than the Army gives "ground miles" to its reserve units—an average reserve/active ratio of .64 for the Air Force and .29 for the Army. This difference translates directly into cost savings forgone. Air Force reserve units are only one-third less expensive than their active counterparts, while Army reserve units are two-thirds less expensive than their active counterparts.

Third, the vast majority of Air National Guard and Air Force Reserve officers and enlisted personnel have prior active duty experience. Over the last two decades the proportion of prior service to non-prior service has shifted from 30/70 to 70/30. In addition, some pilots also fly for airlines, but only a small minority.

Readiness of Naval Reserve and Selected Marine Corps Reserve⁵¹

The Naval Reserve spent the weeks before August 22 preparing for deployment. Between recall and deployment, the Navy "cross-leveled" personnel to fill deficiencies in called units and on last-minute training such as small arms refresher courses. Time from recall to being on station was consistent with times for Army support units. Reserve units called up were able to carry out assigned wartime required operational capabilities.

Prior to ODS/S, the Marines made a substantial investment to develop and maintain their Selected Marine Corps Reserve (SMCR) units' readiness. About 7,400 active duty Marines were dedicated to full-time support for the SMCR, including inspectors and instructors assigned to individual reserve units. The Marine Corps followed a policy that all commissioned officers in the SMCR had to have prior active service. Active and reserve personnel attended the same entry-level and advanced schools, and the same training standards applied for active and reserve units.

Once their self-imposed 60-day limit had passed, the Marine Corps started calling up SMCR units. Reserves started arriving in large numbers by mid-November. On average, the time between activation and deployment was about one month. Units required in theater sooner spent less time. SMCR units were required to complete few (if any) predetermined training pro-

⁵¹Material in this section was provided by the Center for Naval Analyses.

grams. Generally, they were allowed to develop their own training plans based on what they thought they needed most in the time available. Individual units had to overcome local problems: limited training facilities, equipment, and base support.⁵² Commanders and staff officers confronted with the dilemma of organizing and conducting training for their units or training themselves invariably chose the former, which may have limited their own performance later.

About one-fourth of reservists were activated as detachments, teams, sections, or platoons, and doing so caused dissatisfaction for reservists who expected to deploy in company and battalion sized units.⁵³ The positive performance of small units of company size or smaller was attributed to drilling together and strong active duty support programs.⁵⁴ Battalions needed a longer time to get ready. The general consensus was that battalions had had fewer opportunities to train together. Battalion staffs needed more time to "gain control" of their units, to learn to work with adjacent and higher staffs, and to practice the complex tasks associated with battalion operations. Two of the five maneuver battalions deployed to Southwest Asia were employed in frontline combat.⁵⁵ Active/reserve integration, the large number of reservists with prior active service, and similar training standards allowed SMCR units to overcome limited time and limited training opportunities and respond successfully when called. Ultimately, nearly 60 percent of the SMCR would be called compared to about 15 percent of the Selected Reserve of the other Services.

Individual Readiness

The readiness of individual reservists was generally high in ODS/S. The Air Reserve Component substituted personnel and generally mobilized only those who were qualified and available. Over 20 percent of all personnel mobilized in the Army reserve components *initially* had an impediment that precluded deployability without correction or a waiver. The vast majority of these were for dental problems that were either fixed or waived. Medical qualifications, primarily over-40 physicals, and skill qualifications also caused a fair amount of non-deployability, most of which was taken care of

⁵²Interviews with staff officers at Reserve Affairs Division, Headquarters, Marine Corps, at Marine Corps Reserve Support Center.

⁵³Lt. Col. Mark F. Cancian, *Marine Corps Reserve Forces in Southwest Asia*, Marine Corps Research Center, Research Paper 92-0015, July 1991.

⁵⁴Interview with LtGen Boomer, June 1992.

⁵⁵Two others performed rear area security; one did prisoner of war collection.

while units waited for deployment. While individual readiness was not a serious problem for CS/CSS units, it did slow down unit collective training in the ARNG combat units. "During ODS, mobilization of some units might have been streamlined and speeded up if they had previously completed certain routine preparatory actions such as over-40 physical exams, preparation of eye glasses, and dental treatment. In addition, some units required additional personnel because their rosters included significant numbers of 'non-deployables' many of whom were people who had not yet completed initial training."⁵⁶

Reforms to Improve Readiness

There are two reasons why solutions to readiness problems have been difficult to achieve: (1) the lack of resources and (2) the limited time that reservists are able to devote to military training. In the case of the Air Force, high readiness is achieved by providing large numbers of full-time support personnel and extended flying programs. In the case of the Army, however, reduced cost is a fundamental rationale for reserve component units and means less time to practice and less personnel assigned. The "price" of reduced cost is usually reduced readiness. Reservists are part-timers with limited time for training or attending institutional courses such as basic training, advanced individual training, new skill training, and leadership courses. Reserve cost advantage and utilization in peace is balanced against the cost of the training and equipment needed to bring reserve component units up to the readiness/effectiveness levels of active units at mobilization. In a 1983 report to the Senate, the DoD argued that, "Provided a reserve unit is not given excessive alert requirements, is not required to forward deploy for extended periods in peacetime, is not required to train full-time in peacetime, and is not overly burdened with peacetime support missions, its operating and support costs will be less than its counterparts in the Active Force."⁵⁷

Since ODS/S ended, a number of studies and reports have dealt with the issues of reserve readiness, particularly with respect to the Army. Many of the recommendations are long-standing ones; few are disputed. However, for many of the recommendations, the outcomes—the effect on future deployability and individual qualification—are not known.

⁵⁶R. E. Sortor et al., RAND, personal communication.

⁵⁷Department of Defense, *The Guard, Reserve and Active Components of the Total Force*, Report to the Committee on Appropriations, U.S. Senate, June 30, 1983, p. 17.

The House Armed Services Committee has set forth a comprehensive set of recommendations focused on the Army National Guard in seven areas. These reforms are derived from recommendations by the GAO, by the Department of the Army Inspector General, and from its own staff.

1. Increase experience and leadership levels in the Army National Guard. This would be done by mandating that by 1997, 65 percent of officers and 50 percent of enlisted personnel would be prior service. Also, active officers would comment on promotion for reserve officers.
2. Focus training on individual and small-unit skills.
3. Strengthen personnel standards by establishing stricter medical, dental, and physical screening. Also, a special non-deployable personnel category would be established to which individuals could be assigned while gaining deployability.
4. Remove impediments to effectiveness by providing compatible systems for personnel, maintenance, supply, and finance.
5. Create new "report cards." This would be done by modifying reporting systems to accurately assess unit deployability. Every ARNG combat unit would be required to formally associate with an active unit. Active units would assess Army National Guard training, readiness, and resource requirements.
6. Expand the use of simulations, simulators, and advanced training devices.
7. "Reform" the active Army by making it accept responsibility for ARNG readiness and require that the ARNG be integrated into planning for regional contingencies and allocate resources accordingly.⁵⁸

These reforms were generally incorporated into the force structures we developed, which are presented in Chapter 6.

Conclusions

Total Force Policy was effective during the Persian Gulf conflict. Taking the uniqueness of the Persian Gulf context into account, there are a number of conclusions and lessons to be derived from ODS/S for future force planning.

⁵⁸*Report of the Committee on Armed Services House of Representatives on National Defense Authorization Act for Fiscal Year 1993*, pp. 19–20. These provisions were contained in Title XI of the *National Defense Authorization Act for Fiscal Year 1993*, Conference Report to Accompany H.R. 5006, pp. 231–236.

How Available Were the Reserve Components in ODS/S?

By and large, the reserves were available and reported promptly when called to duty. However, there were problems that point to lessons for future force planning.

Some capabilities in the reserves were needed in ODS before any call-up took place. Contingency plans should acknowledge the need for volunteers from the reserve components early in operations, identify the missions where the need is likely to be highest, and establish a minimum length of participation for volunteers. The Air Force Reserve has said that, judging by ODS/S experience, planners should assume that 25 percent of the reserve component will volunteer for military actions and that the planning process should reflect this.

The slow, incremental call-up (using the 673(b) authority) accommodated the domestic and international political situation by providing a restrained, controlled response to events. However, it constrained military planners and affected both the numbers and kinds of units that were activated. Force and contingency planning prior to ODS/S invariably assumed a rapid move through the various stages of mobilization. Because the implementation of 673(b) was so unlike the prior plans and training exercises, there was much confusion prior to deployment.

In the Army, some active units were sent in place of reserves, and integration as envisioned under the CAPSTONE program did not occur. CAPSTONE alignments, which include roundout, were based largely on the global conflict scenario and were generally not followed in ODS/S. The level and logic of directed training associations under the existing CAPSTONE program such as roundout and roundup need evaluation for effectiveness in new scenarios.

The late implementation of partial mobilization in ODS/S meant that individual fillers were not available from the IRR for the first five months. This required extensive cross-leveling and other “work arounds” in some Services to obtain individuals with the needed skills. In the future, planners need to account for the possibility that IRR personnel will not be available.

How Ready Were the Reserve Components in ODS/S?

Generally, we would concur with the statement that “For the most part, when reserve forces were activated, their readiness levels were sufficiently high to ensure mission accomplishment with a minimum of post-mobilization training.”⁵⁹ Units of the Air National Guard (ANG), Air Force Reserve (AFR), U.S. Army Reserve (USAR), U.S. Naval Reserve (USNR), the SMCR, and ARNG CS/CSS units deployed without unacceptable delay. Further, most of that delay resulted from lift constraints not lack of readiness.

The ARNG combat units apparently were not as ready as prior reporting indicated. Once the deployment standard for ODS/S was raised, their train-up time took longer than expected. There are many uncertainties that affect estimates of future train-up time and many factors unique to the Persian Gulf conflict that make it difficult to generalize to lessons about readiness. However, analysis of post-mobilization train-up time is central to any decisions about active/reserve mix and is one of the central tasks of this congressionally mandated study.

Most individuals were qualified to perform assigned missions and functions when deployed. In general, any lack of individual preparedness did not detract from overall readiness. However, any lessons to be drawn from this should be tempered by three facts. (1) A tremendous amount of effort was made to ensure that individuals were deployable prior to call. (2) Due to lift constraints, units remained at mobilization stations beyond the time needed to reach unit deployment and readiness standards, which allowed added time for correcting individual deployment problems. (3) Access to the IRR did not occur until January. Earlier access would have allowed more ready individuals, particularly in skill qualification, to be assigned to called units.

⁵⁹DoD, *Conduct of the Persian Gulf War, op. cit.*, p. H-22.

4. Policies and Practices for Implementing Total Force Policy: A Case Study of the Base Force

Introduction

Despite the importance ascribed to Total Force Policy, members of Congress and the reserve community have been concerned that total force options are not well incorporated into the decisionmaking process of the Department of Defense. These concerns prompted the 1990 congressional request, discussed in Chapter 1, that the DoD undertake an in-house “study of total force policy, force mix, and military force structure.”¹ As part of the effort, a DoD study group was to “evaluate the process by which decisions within the Department of Defense respecting force mix and force structure are made.”² As we noted above, the results of that study and the administration’s FY 1992 defense budget did not meet with universal acceptance in Congress. One result of the congressional reaction was the mandate for this study.

Part of the Section 402 mandate was that a new study group provide an “assessment of the existing policies and practices for implementing the Total Force Policy of the Department of Defense, including:

- i. The methodology used by the Department of Defense in assigning missions between the active and reserve components; and
- ii. The methodology used by the Department of Defense to determine how force reductions are distributed within and between the active and reserve components.”³

In this chapter, we describe the results of that assessment.

¹National Defense Authorization Act for Fiscal Year 1990, Section 1101.

²*Ibid.*

³*Ibid.*

Approach

We addressed the mandate by studying the development of the Base Force⁴ during the critical period from 1989 through 1991, when the most significant force mix and force structure decisions since the end of World War II were made. Our assessment is not an evaluation of the resulting force structure. Rather, it is a case study of the decisionmaking process—the methodologies—used by the DoD to develop its force structure. We believe this is the best way to identify and evaluate the “methodologies” emphasized in the study mandate.

To this end, we sought to answer the following questions:

- Were options presented?
- What criteria were used to examine the options?
- Were costs, benefits, and risks of the options assessed?
- What was the interactive character of the debate?
- In short, did the process provide the best information available for the Secretary of Defense to make his decisions regarding the force structure and its composition?

The answers to these questions are essential to understanding how well the process functions as a means of implementing Total Force Policy.

Study Sources

Our assessment drew upon a variety of sources: extensive interviews with individuals who participated in the process, official documentation, internal memoranda, informal notes, and published reports, including congressional testimony. Since the internal decisionmaking process of the DoD was our focus, and the inner workings of the Planning, Programming, and Budgeting System (PPBS) have always been considered privileged information, specific ground rules had to be worked out with the Office of the Secretary of Defense (OSD) and the Joint Staff (JS). We were allowed to examine materials associated with the process, including critical predecision memoranda, in order to characterize the nature of the process. We agreed not to take specific notes concerning any option, or quote specific numbers except where appro-

⁴According to the Joint Staff and the Office of the Secretary of Defense definitions, the Base Force is defined as the optimum mix of forces necessary to execute the National Military Strategy (NMS). See National Military Strategy of the United States, January 1992.

priate and permission was granted. We agreed not to attribute positions to specific people or offices except where desired and permission was granted. Our focus was the information provided to the decisionmaker, not who provided the information. Naturally we cannot claim to have exhausted every piece of relevant information. Nevertheless, we were given access to many sensitive documents and our discussions were very candid. Thus, in our judgment we have been able to portray the elements necessary to support our analysis and conclusions regarding Total Force Policy implementation.

In the remainder of this chapter, we first describe the PPBS. The PPBS is the DoD's primary system for planning and managing resources, and its schedule largely shaped development of the Base Force. In that context, we then describe the Base Force decision process, including the participation of the Services. Finally, we present our conclusions about the effectiveness of the process for implementing Total Force Policy.

The Planning, Programming, and Budgeting System

In their review of the total force decisionmaking process in the DoD, the GAO noted that "decisions on the use of reserve components occur as by-products of overall force structure decision-making under the planning, programming and budgeting process. . . ."⁵

The PPBS is DoD's primary system for planning and managing its resources. It is a process that is supposed to link national security strategy to specific programs. It was designed to facilitate fiscally constrained planning in terms of complete programs (i.e., forces and systems), rather than through artificial budget categories.⁶ The goal is to determine force, system, and program costs; the PPBS is designed to elicit options and provide for an evaluation of these options in terms of costs and benefits. The output of the process, the Defense Program (DP), is the official record of major resource allocation decisions made by the Secretary of Defense (SECDEF).

The PPBS is an evolving process; it has undergone many changes since its implementation in the 1960s. One of the most recent changes to the process

⁵GAO, 1989, *op. cit.*

⁶By fiscally constrained planning we mean that a set of activities is accomplished to include the generation and evaluation of the broad outlines and options inherent in defense programs and budgets. The process should also support the smooth transition to Program Objectives Memorandum (POM) evaluation and final POM preparation (issues analyzed and debated in more detail). Finally, it provides the basis for developing the annual budget request and the analytic framework for budget defense and congressional testimony.

was implementation in 1986 of the Goldwater-Nichols legislation. Goldwater-Nichols has had many effects on the DoD resource allocation process. It argued that serious deficiencies existed in the utilization of resources and decisionmaking, as well as inordinate "Service" influence in the planning and budgetary process. The legislation directed that (in order to increase civilian participation), the roles of the Service Secretaries, OSD, and the Chairman of the Joint Chiefs of Staff would have to be changed.

In particular, the legislation gave the Chairman of the Joint Chiefs of Staff (CJCS) both the authority and the resources for a new and expanded role in the resource allocation process. The CJCS and his expanded staff were directly responsible for providing the SECDEF with fiscally constrained military strategies and net assessments.

Below we briefly summarize the PPBS process from the perspective of the OSD. There is a hierarchy to the PPBS. Figure 4.1 illustrates that the planning phase starts with broad decisions involving the senior decisionmakers in the OSD and progresses to the budgeting phase where previously made decisions are reviewed in detail to determine how they can best be implemented.

Issues are proposed during the planning phase, developed during the programming phase, and reviewed for feasibility during the budgeting phase.⁷

Planning Phase

A new PPBS cycle begins immediately after the budget is submitted to Congress. During the first phase, the planning phase, the existing military posture of the United States is assessed against various concerns, including national security objectives and resource limitations, available military strategies, and national security objectives contained in National Security Decision Directives (NSDDs) and National Security Study Directives (NSSDs).

The output of the process, the strategic plan for developing and employing future forces, is defined in the SECDEF's Defense Planning Guidance (DPG), which is published in the fall or early winter. The DPG contains the

⁷This discussion draws on several sources. The details of the PPBS discussion may be found in *The Defense Resource Allocation Process*, 1990, or *Army Command and Management: Theory and Practice*, 1992-1993.

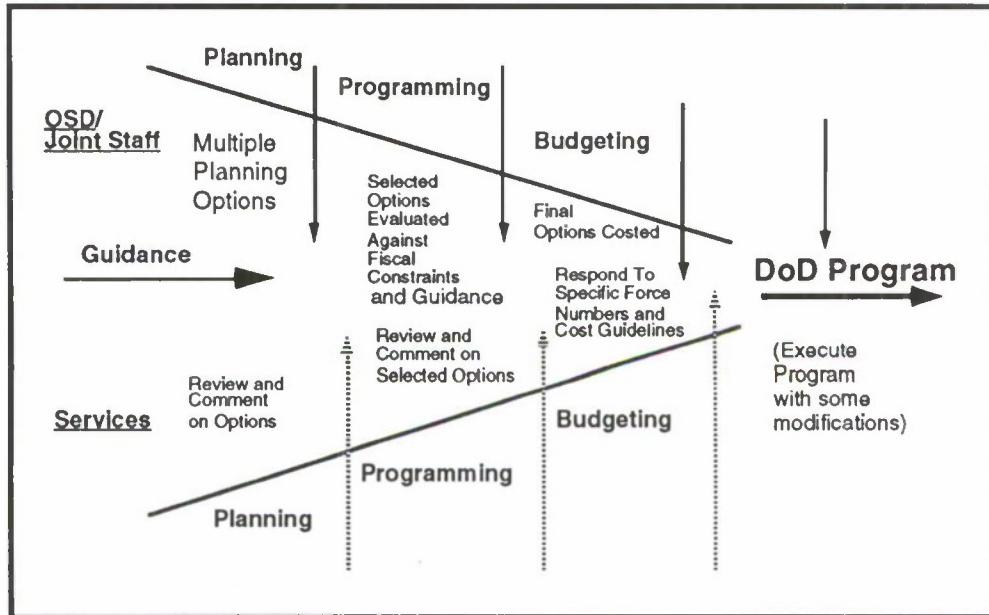


Figure 4.1—Decision Process as Shaped by the PPBS

SECDEF's top-level guidance for producing the defense program. It is responsive to the president's national security strategy, from which the national military strategy and fiscal guidance comes, as set out by the president through the Office of Management and Budget (OMB). It may also contain very explicit guidance regarding Program Priority Objectives (PPOs), which are the core programs that the SECDEF wants the military departments and DoD agencies to fund in their POMs. The POMs are the military departments' and DoD agencies' resource programs that reflect the DPG and the fiscal guidance.

Programming Phase

The transition from the planning phase to the programming phase (from the OSD perspective) falls somewhere between the issuance of the DPG and the submittal of the POMs by the military departments and defense agencies in the spring. The POMs are reviewed by the Joint Staff and OSD to determine whether the programs meet the SECDEF's guidance.

The CJCS's evaluation of the POM, based on input provided by the Joint Staff, is contained in the Chairman's Program Assessment (CPA). The CPA

assesses the risks in the total force proposed by the Services and defense agencies in their respective POMs. Included in the assessment is an evaluation of how well the POMs satisfy the requirements identified by the CINCs of the unified and specified commands.

OSD reviews the military departments' POMs and the CPA. Using these analyses, the various OSD offices raise "issues" if there are problems perceived during the review. The decisions taken regarding issues are published in the Deputy Secretary of Defense's (DEPSECDEF's) Program Decision Memorandum (PDM), which is normally written in mid to late July.

Budgeting Phase

The PDM marks the end of the programming phase and provides a starting point for the budget phase. After the military departments receive the DEPSECDEF's program decisions in late July, they must adjust their programs and budgets to bring them into line with program decisions. Their programs and budgets are submitted to the OSD Comptroller in early September (called the Budget Estimate Submission (BES)) to be followed by several months of budget hearings. Major budget issues may be heard in a Defense Planning and Resources Board (DPRB) Review with final decisions announced in a series of Program Budget Decisions (PBDs). The totality of the final PBDs, when used to revise the BES, becomes the president's budget, which is submitted to Congress.⁸

The DPRB is an integral part of the PPBS structure. It consists of the SECDEF; the DEPSECDEF; the CJCS; the Under Secretary of Defense for Policy (USDP); the Under Secretary of Defense for Acquisition (USDA); the Assistant Secretary of Defense, Program Analysis and Evaluation (ASD, PA&E); the DoD Comptroller; and the Service Secretaries. It serves as the principal formal vehicle for focusing deliberations regarding all resource planning and allocation at the highest levels for the SECDEF's consideration.

There is another deliberative body that is now also an integral part of the PPBS and the advisory structure to provide information to the SECDEF: the DoD Executive Committee (EXCOM). Its membership comprises the CJCS, DEPSECDEF, Service Secretaries, the Under Secretary of Defense for Acquisition, and the Under Secretary of Defense for Policy.

⁸See also the DoD Instruction 70456.7 for another description of the entire process.

It is very important to an understanding of the process to recognize that these deliberative bodies are the senior forums for debate regarding major defense issues and, as such, create a demand for information, options, and analysis that are intended to provide the SECDEF the best possible information for decisionmaking.

Base Force Decision Process

Overview

The Base Force development process took place over approximately a year and a half and spanned the three phases of the PPBS. Its features were analyzed within the PPBS, which was an adaptable vehicle for transmitting the guidance given by the president and the SECDEF to reduce the force structure in response to the changed strategic environment and domestic fiscal constraints. During the planning phase, a broad number of force structure and reduction options were developed and debated. The programming phase saw a narrowing of these options, as fiscal constraints were overlaid on the analysis. Finally, the budgeting phase was driven by ensuring that a narrower set of options adhered to the stringent fiscal guidelines. The force structure issues followed this “funnel down” process; broad force structure concepts were gradually narrowed to a specific option.

Force reduction issues were critical to how DoD managed to meet the directed budget reductions of the October 1990 Budget Summit Agreement, during which the Congress and the president agreed to a new budget that included further reductions in DoD fiscal guidance. The Base Force decision was among the major decisions that shaped the FY 1992–1997 DoD budget submission to Congress.

Planning Phase (Spring 1989–Early Spring 1990)

The events in the Soviet Union were the impetus for a complete review of U.S. military roles and missions. Soon after his inauguration, President George Bush requested that the U.S. national security agencies examine the changes in the strategic environment. In the spring of 1989, the Joint Staff initiated the Force Structure/Force Mix Quiet Study.⁹ The directors of J-5 and J-8 (Force Structure, and Resources and Assessment, respectively), with a small

⁹Hereafter referred to as the Quiet Study.

staff, began to examine the changes in the strategic environment and assess their implications on the upcoming FY 1992–1997 DoD program.

Initially, the Joint Staff concentrated its analysis on the reduction of the U.S. force structure in Europe. Another issue addressed during the study was how to maintain the global forward military presence that was essential to U.S. security. The study contained neither fiscal nor force mix guidelines.

The fact that the Joint Staff was working on force structure issues directly for the CJCS *without formal participation by the Service chiefs* was a natural outgrowth of the Goldwater-Nichols legislation, but it was still without precedent. However, Service staff members frequently met with members of the Joint Staff to discuss issues that we found to be integral to the Quiet Study.

In the late summer of 1989, the incoming CJCS, General Colin Powell, asked the Quiet Study team to focus on two issues: (1) what was needed to execute the National Military Strategy and (2) how force structure issues could be framed within a regional orientation. Both issues would become central to development of the Base Force, and, at this point, the Quiet Study evolved into the Base Force study. Through the summer and well into the fall, the Joint Staff formulated what they viewed as a new National Military Strategy.

The resulting Base Force needed to meet the operational demands across a spectrum of environments. The Base Force had to have sufficient flexibility to adapt to changes in the environment while preserving a set of core capabilities. Resulting force structures needed to incorporate the strategic principles of readiness, collective security, arms control, maritime and aerospace superiority, strategic agility, power projection, technological superiority, and decisive force. The study team provided a “regional orientation” by focusing on four conceptual military force packages: Pacific force, Atlantic force, contingency force, and strategic force. Later, four support capabilities, transportation, space, reconstitution, and research and development (R&D) were to be added.

Prior to the collapse of the Soviet Union, most defense planning documents indicated that defense resources, particularly force structure, were derived from the national strategy to counter a global threat. Now, forces would be linked to regional threats and generic requirements for capabilities.

In November 1989, General Powell discussed the study with the Service chiefs. In December 1989, President Bush was briefed by Secretary of Defense Cheney and CJCS Powell on the new strategic environment and the

concept of a Base Force. At the same time, the SECDEF used the PPBS structure to initiate a "Policy and Program Review," a series of discussions regarding future planning and programming issues to be heard in the DPRB meetings. He asked his principal staff officers and the Services to prepare "issue papers" that might help him think about the implications of the current changes for the future. In December 1989, the DPRB published a force structure alternatives paper to foster a debate about U.S. force structure for NATO. It discussed several force size and force mix options and asked the Services to review and comment on them.¹⁰ A second issue paper requested that the Services review and comment on the force structure planning assumptions being used by the Base Force study group.¹¹ This high-level debate certainly addressed many aspects of the active/reserve mix.

If the situation in terms of planning guidance was "uncertain" because of changing perceptions of the threat, it was also uncertain in terms of fiscal guidance. In February, the SECDEF published the fiscal guidance for POM FY 1992–1997. The guidance also provided some general notions about the size of budgets in various program areas.

By early spring 1990, the basic structure of the Base Force was defined. The central issues to be resolved were: When to begin the drawdown? Is the Base Force affordable? When should growth and modernization be planned in the out years? And how can long-range planning be accomplished without some solid fiscal guidance? In March 1990, the CJCS briefed and discussed these Base Force issues with the OSD leadership.

On April 24, 1990, the CJCS briefed the CINCs (with the Service chiefs present) on the status of the Base Force work. This briefing revealed the extent to which the analysis had matured. The attendees agreed that the Army would be the Service most affected by the changes.

Programming Phase (February 1990–September 1990)

During the programming phase, the Base Force decision process became further interwoven into the program considerations, consistent with the notion that the process is designed to narrow options as it moves from phase to phase. In general, the internal view of the programming phase was that it

¹⁰DPRB issue paper, Army and Air Forces for NATO, December 1989.

¹¹Evaluation of Planning Assumptions Paper.

would be used to make budget and force structure adjustments. But all of the participants—OSD, the CJCS, the Joint Staff, and the military departments—acknowledged that the programming cycle would probably be out of synchronization with the rapidly changing domestic and strategic environments.

The phase was shaped by DoD's uncertainty over the changing strategic environment and the mood of Congress concerning the deficit and expenditures on domestic programs. In March 1990, in his *Report on the National Security Strategy of the United States*,¹² President Bush indicated that force structure must be rethought, asserting that we must thoroughly explore placing more emphasis on reserve forces, which "are generally less expensive to maintain as one alternative." Those missions that require a "high surge" activity in wartime, but have a comparatively low activity in peacetime, are ideal for reservists. President Bush also noted that cost considerations should be carefully weighed.¹³ These points reflected some of the planning principles used in the Base Force considerations.

Another factor that helped shape the justification of the FY 1991–1992 budget and the FY 1992–1997 program was a series of floor speeches given by Senator Sam Nunn in March and April. The speeches focused on the DoD budget and defense strategy.¹⁴

In his March 29, 1990, speech Senator Nunn indicated that as a result of the major changes in the "nature of the Soviet threat," the strategic environment would change. The challenge for the United States, he argued, was to distinguish between threats and risks. The most critical question facing the United States is "how much force is enough"; what is sufficient to deter or defend against these threats and protect our security interests? He further noted that, "To answer these questions requires new thinking on the part of DoD."¹⁵

In his second speech (April 19, 1990), Nunn explicitly stated that U.S. capabilities had to be restructured. The restructuring needed to look across

¹²The *Report on National Security Strategy of the United States* is an annual report that must be prepared by the president and his national security staff. It defines the U.S. security objectives, from which the U.S. National Military Strategy and objectives are derived. In 1990 this document was critical because it established the new foundations—the collapse of the Soviet Union and the resulting new strategic environment—for the new military strategy.

¹³*Report on the National Security Strategy of the United States*, March 1990.

¹⁴DoD Summary of Speeches, April 21, 1990.

¹⁵Defense Floor Speeches by U.S. Senator Sam Nunn, Defense Budget Blanks, March 29, 1990.

various contingencies. Integral to the restructuring of the new U.S. military strategy was a proper force mix. Nunn noted that in this "period of increased warning time and fiscal austerity, we must conduct a fundamental reexamination of the use of reserves in the military services."¹⁶

In his final speech on April 20, 1990, Senator Nunn summarized what a new strategy should contain: (1) nuclear deterrence, (2) reduction in forward deployed troops, (3) *focus on the reserves, and specifically, their force structure for a reinforcement mission*, (4) employment of the concept of flexible readiness, and (5) increased use of prototypes for smarter systems (not necessarily new ones). Nunn stated that "over a five year period, the savings from implementing this strategy would be more substantial. A determined, yet practical implementation of this new strategy would save approximately \$225–\$255 billion in budget authority and \$180–\$190 billion in outlays from fiscal year 1991 through 1995."¹⁷

It was reported to us that, at this time, the SECDEF and CJCS decided that an unclassified NMS would be published. It would lay down the whole concept of the Base Force, with particular emphasis on how DoD's program was derived from the president's *Report on the National Security Strategy of the United States*. Published in January 1992, the NMS would show how the new military strategy and the Base Force were an outgrowth of the national security strategy—demonstrating the top-down linkage and guidance explicitly called for by Congress. The NMS drew a direct connection between the Base Force and the new military strategy.

These congressional concerns were raised as DoD was beginning the summer program review. Two major issue papers that focused on force structuring and force mix options were prepared for the DPRB meetings during the review. The first issue paper reflected the nature of the debate: Do the Service programs reflect a conventional force posture that adequately responds to the emerging strategy? Were the proposed force structure and force mix options sufficient to respond to the current and projected threats and strategy with the available resources? How flexible were the proposed force structures and force mixes? A variety of alternatives were debated, including an alternative that was the Base Force. This paper was presented jointly by the CJCS and the Under Secretary of Defense for Policy, and we believe it was the lead analytic presentation that resulted in the Base Force decision.

¹⁶Floor Speech, Senator Sam Nunn, April 19, 1990.

¹⁷Floor Speech, Senator Sam Nunn, April 20, 1990.

The second issue paper, presented by ASD (FM&P)/ASD (RA), focused on the active/reserve mix issue directly. It posed five force structuring alternatives. Alternative 1 was the POM submission, Alternative 2 was the Base Force option, and Alternatives 3 through 5 contained varying degrees of reliance on the reserves. The paper also noted that tradeoffs need to concentrate on capabilities and costs. In terms of views presented, not only were a variety of options raised but members of the Total Force Policy study group were active participants in the construction of the issue paper.

The active/reserve mix paper elicited a strong debate among the members of OSD, the Joint Staff, and the Services. Some argued that reserve forces were almost always less expensive to organize and maintain than comparable active forces. Others argued that cost-effectiveness had to include all costs associated with reserves. This included the supporting infrastructure—training, medical care, base facilities, etc.—and peacetime operations. Thus, they argued that reserves might not be all that less expensive than active forces. Further, comparisons had to include all elements of capability. In other words, the notion was that reserves might not provide the same capability as the active component. The active component was challenged and *alternatives were made to compete on cost-effectiveness principles.*

On July 9, 1990, the SECDEF and the CJCS briefed President Bush on the Base Force and the various force structure options. Much of the material presented at the DPRB on June 25 was given to the president. It was incorporated into his August 2, 1990, speech at the Aspen Institute Symposium. In that speech, the president discussed the 25 percent reduction in force structure by FY 1995. He also indicated that the force structure needed to be rethought, and that the military strategy would have a regional focus. Concerning force mix issues, President Bush indicated that the active forces will respond to crises and that the reserves would be utilized in new ways, particularly given the diminished need for short-term mobilizations.¹⁸ In a sense, then, the president approved implementation of the Base Force—just when Iraq invaded Kuwait.

An August 9, 1990, PDM directed the Services to stay with their POM numbers generally for the time being, but also to be prepared to make adjustments in keeping with the fiscal guidance. The number of reserve units were, however, reduced to those in the Base Force.

¹⁸In Defense of Defense, President George Bush's Speech to the Aspen Institute Symposium, August 2, 1990.

The programming phase concluded with the issuance on September 5, 1990, of a Program Assumption Memorandum (PAM)/PDM. The PAM/PDM directed the military departments to implement the Base Force, but allowed some latitude for additional options as long as the Services provided "a force structure that is logical and stays within fiscal constraints."¹⁹ The PAM/PDM contained guidance on several force structuring issues: For instance, the Army was directed to reduce its reserve combat structure and to equip two cadre divisions at reduced strength. The Air Force was directed by the DEPSECDEF to reduce the number of active force tactical fighter wing equivalents (TFWEs) by FY 1995.²⁰

Budgeting Phase (October 1990–January 1991)

The central feature of the budgeting phase was the need to stay within the fiscal guidance. The debate was structured around the effectiveness of the Base Force versus the cost of proposed alternatives, which were repeatedly, but only marginally, changed in response to the changed fiscal constraints.²¹

In October, the Congress and the administration reached an agreement on the size of domestic and national security spending to cover the next five years. It reduced FY 1991–1994 defense expenditures to levels that represented a 2 percent real decline; this equaled approximately \$106.9 billion in FY 1992 dollars. The budgeting phase now focused solely on bringing the budget into alignment with this Budget Summit Agreement.²²

During the period between the Budget Summit Agreement and the president's budget submission, the Services developed options in response to the anticipated lower fiscal guidance. In a November 29, 1990, EXCOM meeting on the FY 1992–1997 DoD budget, the SECDEF presented his detailed directions for accommodating the lower fiscal guidance.²³ A four-pronged approach characterized his strategy presented for reducing costs: (1) management initiatives to streamline procedures and streamline staffs and (2) a hard budget scrub, both of which had already been executed. The remaining options were (3) additional force structure reductions and (4) adjustments in the military departments' modernization and operations accounts.

¹⁹PAM/PDM, September 5, 1990.

²⁰PAM, September 5, 1990.

²¹Interview, Sean O'Keefe, DoD Comptroller, June 25, 1992.

²²November 29, 1990, DoD Budget Briefing to the Services.

²³November 29, 1990, DoD Budget Briefing.

The force structure debate was not settled until after December 6, 1990, when the Services presented to the EXCOM their responses to the November 29, 1990, DoD budget presentation. A number of agreements were struck by the Services, in particular the Army, concerning the force mix. The Base Force numbers were implemented, therefore, but with a few minor modifications. The final agreements were formalized in the January 11, 1991, PBDs, which directed the Services to implement the results, and in the January 15, 1991, PBD, which directed that all of the DoD implement its contents.²⁴

Service Participation in the Base Force Decision Process

The Services were responsible for both commenting on and generating new options. Some of the key issues concerning their participation are: How did the Services participate in the debate, and what was the character of the participation? How did they view and respond to the guidance? All of the Services were affected by the changes in force structure. However, they took different approaches in responding to the fiscal guidance and the development of the Base Force decision, and in negotiating force structure and force mix reductions. The Army chose to utilize both the formal and informal processes to present and justify its force structure and force mix. The Navy exercised the formal process to present and negotiate a compromise position. The Air Force, on the other hand, utilized the informal process to reach an agreement on its force structure and mix. It then used the formal process to record the already agreed to changes.

Army

The Army began to re-examine the strategic environment in the fall of 1987. The incoming chief of staff of the Army concluded that the Conventional Forces in Europe (CFE) talks had long-term implications on the U.S. Army's presence in Europe. This analysis evolved into the justification of the Army's FY 1992–1997 POM.

After considerable internal debate and discussion, the Army leadership concluded that the best course (in such a period of strategic uncertainty) was to retain as much of its force structure as possible. This position drove the Army's analysis and responses to OSD through the programming and bud-

²⁴PBDs, January 11, 1991, #725, 726, 727; PBD, January 15, 1991, #731.

geting phases. During these two phases the Army traded off its modernization and acquisition programs in order to sustain its force structure.

Initially, because of the strategic uncertainty, the Army's arguments held sway. But in the face of external events—the further decline of the Warsaw Pact threat and reduced fiscal guidance—the Army found that it could no longer analytically support its force structure levels and active/reserve mix. Its early analyses were derived from a quantitative computation of requirements. These requirements were based on such factors as attrition, consumption rates, threat, OPTEMPO (operational tempo), costs, and acceptable risks. As uncertainty and risk changed, analysis could no longer justify a large active force structure, and the Army was finally externally directed to bring its force structure into alignment with the Base Force numbers.

Department of the Navy

Similar to the Army, the Navy was also hesitant to accept a radical change in the threat environment. In the early phases of the Base Force analysis, the Department of the Navy in several formal responses to OSD indicated that sharp reductions in resource levels could inhibit the Service's ability to wage a general war.

However, the Navy also recognized that, given the new strategic realities, there would be force structure adjustments. Early in the programming phase, it accepted the concept of the Base Force, but the Navy leadership continued to have serious questions about the size of the force and the force mix.

By the November 29, 1990, OSD budget briefing, which directed the Services to implement the Base Force, most of the Navy's issues had been resolved. The manpower, both in the active and reserve components, reflected a compromise between the Navy's and the Base Force's numbers.

Air Force

The Air Force pursued a course of preserving as much of its modernization and acquisition accounts as possible. Early in the program deliberation, the leadership accepted that its force structure would be reduced; it also accepted the concept of the Base Force. The issue was force size and mix. The Air Force's force structure was fairly well established following the September 5, 1990, PAM/PDM. Throughout the program review and budget-

ing phase, the Air Force did internal analyses of force structure reductions so that it could plan for the anticipated reductions.

Conclusions and Implications

In keeping with the congressional mandate for this study, our purpose was to assess DoD's "existing policies and practices" for implementing Total Force Policy. The mandate pointed us particularly to "methodologies" used to assign missions and force reductions between active and reserve components. For us, this guidance translated into a mandate to examine the *process* rather than the outcome of implementing Total Force Policy. We reasoned that the best way to accomplish this is not to generalize from *n* examples of force structures, as represented in DoD budgets since the establishment of Total Force Policy, but to look at what actually happened. We chose the process of developing the Base Force presented in DoD's FY 1992 budget.

The Base Force Process Improved upon Past Practices

We began our study by reviewing previous analyses dealing with Total Force Policy. With the exception of the Total Force Policy study, of 1990, the studies identified deficiencies in the implementation (or practices) of the policy that resulted in suboptimizations. They noted that the PPBS was the appropriate process to implement the policy but that aspects needed to be changed. These included stronger guidance from OSD and the CJCS, increased horizontal integration, the generation of options and a decision factor framework, and top-down linkage of requirements.

The evaluation of the Base Force decision process indicates that, as the defense environment changed, the SECDEF and the CJCS concluded that many of these same elements had to be included in the DoD's "practices." Members of the Joint Staff and OSD who participated in the Base Force process indicate that these changes—which are still being institutionalized—were only logical, given the new environment.

During this period, Goldwater-Nichols legislation enhanced the role of the CJCS and the Joint Staff in the resource allocation process. As the Base Force decision unfolded, the CJCS evidently functioned as a major integrator in the resource management process. This position could not have been sustained without the analytical support provided by his realigned staff.

These changes in DoD's structure created a great deal of tension with the Services. Up until this program (FY 1992–1997), the Services held the

preponderance of influence in defining and allocating what they viewed to be "their resources." The Services now had to take not only the OSD guidance but also the guidance of the CJCS, and generate options. And those options not only had to satisfy the respective Service's leadership and OSD, but also had to be credible and justifiable to the CJCS and the Joint Staff.

There is some debate among the participants concerning the level of guidance provided by the DoD leadership. Although some assert that the interactions among the OSD staffs, the Joint Staff, and the Services reflected a "general lack of guidance," our findings suggest that this interaction was more in response to the strategic and budgetary uncertainties. The new planning environment necessitated that options now had to be shared and debated in the broader DoD forum, and this was done. The process promoted option-building and debate. The Services indicated (and the documentation substantiates) that key issues were raised and discussed with the DoD leadership before an issue paper was formally published.

The Debate Was Dynamic and Lent Itself to Considering Multiple Options

In this analysis four key issues were identified:

- Was the SECDEF given sufficient information to make decisions regarding the active/reserve mix decisions?
- Were options presented to the DoD leadership?
- Were costs and benefits assessed for the options presented?
- Was the debate interactive?

Our review of the process suggests that the answer to all the questions is "yes."

The end of the programming phase and the entire budgeting phase have been criticized by some for an apparent lack of options. Many see the process at this point as driven disproportionately by the Base Force and the fiscal considerations. The DoD leadership had probably decided before the end of the program review that the Base Force was going to be implemented. The options, therefore, might be seen by some to reflect a less open process. On the other hand, early analysis had dealt with broad issues of strategy, policy, risk, and costs. It is only natural that issues later in the debate would appear less broad and more detailed. The real evidence for a flawed process would exist if a new option or set of options far removed from previous con-

siderations were suddenly raised and decided upon at this stage in the process. We did not see this. Moreover, with the uncertainty introduced by Iraq's invasion of Kuwait, it seems to us that it was prudent to retain some flexibility in force structure until the situation was clearer.

Various CINCs have indicated that they did not participate in the Base Force process. Evidence suggests, however, that they were informed and even discussed various force structure and mix options with their respective Service leadership, as well as in the several CINC colloquiums. These divergent viewpoints are attributable, in part, to the way that many CINCs viewed their roles within the changing DoD resource allocation environment. Although the CINCs' role in the resource allocation and management process had increased through a number of DoD initiatives in the 1980s, their orientation continued/continues to be focused mostly on their immediate (1-2 years) and somewhat on their near-term (3-5 years) requirements rather than on the long term. Their orientation is on their respective theaters. They view the job of the CJCS and his staff as providing the horizontal integration across theaters and time.

The quality of the options also needs to be addressed. Often the responses to OSD positions did not appear analytically sound, but largely because of different assumptions about the threat, Service roles and missions, and interpretation of the National Military Strategy. The process accommodated advocacy, but it also required that the positions could be supported analytically. At times, they were not, and, when options/alternatives and responses had no analytical underpinning, our evidence shows they were quickly dismissed.

The studies we reviewed all concurred on another point: *All Total Force Policy, if properly implemented, follows cost-effectiveness principles.* From our analysis of the Base Force decision process, it is clear that not only were various criteria used to evaluate options during the planning, programming, and budgeting phases of the Base Force decision process, but that cost-effectiveness was paramount.

The two foci of the planning phase were the changing strategic environment and the uncertainty about the eventual size of the defense budget. The force structure and force mix issues were shaped by arms control, an ill-defined threat, and an uncertain defense budget (floors and ceilings had yet to be de-

terminated).²⁵ Risk, mobilization, deployment, and cost-effectiveness were all considered.

Risk was an integral part of this phase of the Base Force analysis and ultimately was one of the key determinants of the distribution of forces. We began to see that the guiding principle for distribution of forces was flexibility (readiness) to meet or adapt to any threat: Base Force analysts concluded that there should be "a carefully managed blend of highly ready forces engaged in activities."²⁶

The Base Force decisions reached during the planning phase were shaped by: (1) projected Base Force costs and capabilities and (2) fiscal realities. During this phase several Base Force options were costed, and much of the debate concentrated on what should be included in the costs of reserve forces.

The programming phase was marked by increased emphasis on cost, as well as on risk and force effectiveness. In the informal process, costs were rigorously debated. The Services and the Joint Staff were quite vocal in asserting that cost must include total costs rather than just direct costs. Thus, force efficiency, particularly how the force mix was arrayed across the force packages, was included in the cost debate.

The budgeting phase was driven by the alignment of the DoD program with the top line initially established by the PAM issued in September, and later, by the October Budget Summit Agreement. Some elements of the Base Force were directed by the PAM. The OSD leadership directed the Services both to respond to stated alternatives and to develop new ones. But the guidelines for what the new alternatives had to include were very specific. And most important, new options had to be within the force structure and fiscal guidelines.

In sum, despite the challenges of a very dynamic, complex environment, our assessment indicates that the Base Force decision process took a remarkably successful course. Participation in the evaluation was widespread. Issues were pulled into the PPBS process as they should have been. Options were evaluated from the appropriate perspective of costs, risks, and capabilities. Thus, we believe that Total Force Policy can be said to have been implemented in the "practice" of the Base Force decision process.

²⁵Joint Military Net Assessment, Draft 1990.

²⁶National Military Strategy, January 1992, Base Force—A Total Force, Internal working papers.

Section III

Developing Alternative Active/Reserve Structures and Force Mixes

5. Developing Alternative Active/Reserve Structures and Mixes: Defining Characteristics

Overview of Section III

In Section 402, Congress asked that this study provide “an assessment of a wide range of alternatives relating to the structure and mix of active and reserve forces appropriate for carrying out assigned (military) missions in the mid- to late-1990s.”¹ Responding to this mandate required that we undertake an iterative process: First, we had to identify the characteristics that are most important in defining active/reserve force options. This set of defining characteristics provided the conceptual framework for developing the structures. Second, we had to fill out the framework by considering what the military requirements (“missions”) of “the mid- to late-1990s” were likely to be and how likely it was that various organizations could be trained-up and deployed to fulfill those requirements. Third, we used this information to develop and evaluate the potential of alternative structures to meet the requirements. Finally, we had to assess the military effectiveness, cost, and personnel sustainability of the alternatives.

In this section of the report, we describe the first three steps. Section IV presents the final steps. The purpose of this chapter is to identify the defining characteristics that provided our framework for designing alternative force structures.

Defining Characteristics

We drew on a number of sources to identify the characteristics that define—and make distinctive—different active/reserve force structures and mixes. Foreign military services provided a number of active and reserve paradigms

¹National Defense Authorization Act for Fiscal Years 1992 and 1993, *op. cit.*; Conference Report, Report 102-311, Sec. 402, *op. cit.*, p. 62.

or models. There is a rich diversity of approaches within the U.S. military, both across Services and within a single Service. Individual experts, other research organizations, and military affiliate organizations such as the National Guard Association of the United States (NGAUS) and the Reserve Officer Association (ROA) made specific proposals that emphasized principles for organizing active and reserve forces. Still other suggestions came out of interviews with senior leaders in all of the Services, and their active and reserve components, as well as with senior staff in the Office of the Secretary of Defense and the Joint Staff.

Although the existing and proposed models can be described in a great many ways, we found that a limited number of characteristics truly *defined* the alternatives. Four broad defining characteristics set the various models apart and limited the alternatives that we finally developed. These characteristics were:

- Purpose,
- National Military Strategy,
- Criteria for structuring forces, and
- Integration of active and reserve forces.

Purpose refers to the reason why a military force exists. The National Guard's concern about their state role and the discussions about non-combat roles for active units center around the issue of purpose. If the primary mission of reserve forces under Total Force Policy changed from primary augmentation of active forces in conflict to, for example, peacetime support of the nation, it might require significant changes in both active and reserve forces to accomplish the new mission. Thus, purpose provides the *raison d'être* of active and reserve forces.

The *National Military Strategy* provides the performance goals that active and reserve forces must be designed to meet and against which they will be evaluated. The congressional mandate asks us to consider force structures and mixes that are "appropriate for carrying out assigned missions" and asks the Secretary of Defense and the Chairman of the Joint Chiefs of Staff to determine what "mix or mixes of reserve and active forces . . . [that our study provides] are considered acceptable to carry out expected future military missions [emphasis added]."² The National Military Strategy defines the "ex-

²*Ibid.*, p. 63.

pected future military missions" and identifies other constraints, such as the requirement for forward presence.

Criteria for structuring forces lie at the heart of different interpretations of Total Force Policy. The two tenets of that policy most cited in DoD publications are (1) reliance on reserve forces as the primary augmentation for the active forces and (2) integrated use of all available personnel—active, reserve, civilian, and allied. Cost-effectiveness is the primary principle underlying these tenets. However, many in Congress (and several of the military service organizations) believe there is a third, political, tenet that suggests other design goals besides cost savings and the ability to meet the demands of the National Military Strategy.

Finally, *the way active and reserve forces are integrated* is the "oldest" defining characteristic of all. Ways and kinds of integration were central to the arguments of Calhoun and Upton, to the proposals of Root, and to the recommendations of Stimson, Wood and Palmer, all discussed in Chapter 2. They are central to discussion of roundout and roundup. Indeed, as we developed alternative active and reserve force structures, we operationalized the preceding three characteristics through ways in which active and reserve forces are integrated.

We also found a number of factors, some of which were mentioned in the congressional mandate, such as "missions assigned to some active and reserve units, . . . training practices, (and some) organizational structures of active and reserve components"³ that were important in terms of implementing an alternative but were not at all important in defining the alternative. For example, disagreement between the administration and the Congress about criteria for structuring forces is much more fundamental than what training strategy will be used or what model of aircraft will be assigned to a given reserve unit. In this chapter, our primary focus is on the defining characteristics that shape the alternatives that we developed for further analysis. Below, we examine each of these defining characteristics in more detail and indicate how they informed our design framework.

Purpose

Military forces have two broad purposes: conflict and non-conflict. The conflict role is usually thought of as the principal purpose of military forces and

³Ibid., p. 64

the role for which forces are generally structured.⁴ However, historically the military has had such non-conflict roles as civil engineering, the maintenance of civil order, disaster relief, and fire fighting. Responsibility for these non-conflict missions cuts across all the components: active, National Guard, and federal reserve forces.⁵

In addition to serving in federal missions, the National Guard also has responsibilities for state missions. During Fiscal Year 1989, the National Guard was called upon to assist state governors in four civil disturbances and 53 natural disasters.⁶ The National Guard has also taken on a significant role in counter-drug support. Acting in Title 32 (state) status, rather than Title 10 (federal) status, the National Guard provided 875,000 man-days in support of marijuana eradication operations, container searches, aerial and ground transportation, and other counter-drug activities in FY 1991.⁷

Currently, there are proposals for expanding the non-conflict role of the military into new mission areas. Senator Nunn, for example, described some of these new areas in a floor speech.⁸ These include military-based training to improve the basic skills of high-school dropouts, rehabilitation and renewal of community facilities, and other activities. The Army has studied areas in which it could provide cost-effective and timely support of federal and state non-conflict missions.⁹

Despite the evident importance of the non-conflict missions and the counter-drug mission, almost all active and reserve forces have been structured for military missions.¹⁰ A force structured for non-conflict missions would surely look different from one structured solely for conflict. Recently, the

⁴This is not to say that there has not been a great benefit to the country from military training and technological developments, but these are secondary effects.

⁵The Army does have an organization—The Army Corps of Engineers—structured for non-conflict missions. Its emphasis is civil works, including flood control and maintaining and regulating inland waterways.

⁶Departments of the Army and Air Force, National Guard Bureau, *National Guard Bureau Annual Review Fiscal Year 1989*, Washington, D.C., 1989.

⁷Honorable Stephen M. Duncan, *Statement of the Department of Defense Coordinator for Drug Enforcement Policy and Support*, Hearing before the Subcommittee on Investigations, House Armed Services Committee, April 29, 1992.

⁸Senator Sam Nunn, "Forging Civil-Military Cooperation for Community Regeneration," Floor Speech, *Congressional Record*, p. S8602, June 23, 1992.

⁹U.S. Army Concepts Analysis Agency, *Army Support Options Study: Study Plan*, briefing, n.d.

¹⁰A recent Congressional Budget Office study noted that "These arguments (for National Guard domestic missions) notwithstanding, the need to be ready to fight foreign wars will largely determine the mix of the National Guard and the other reserve forces. That has been the case in the past, and the remainder of this study assumed wartime requirements remain the basis of future planning." Congressional Budget Office, *Structuring U.S. Forces After the Cold War: Cost and Effects of Increased Reliance on the Reserves*, September 1992, p. 13.

Assistant Secretary of Defense (Reserve Affairs) commented on the role of National Guardsmen in support of law enforcement agencies, ". . . most soldiers and airmen are not trained in law enforcement skills. They are trained to destroy tanks, to engage in and win in armed combat. Law enforcement [officers] are trained to preserve evidence for presentation by prosecutors in courts of law—a much different mission."¹¹

We found no written disagreements with this force-structuring strategy among those arguing for expanded or new non-conflict missions. For example, in his proposal for civil-military cooperation, Senator Nunn said, "Any such project must be undertaken in a manner that is consistent with the military mission of the unit in question. . . . The attention of DoD's civilian and military leadership must remain focused on training the Armed Forces for their primary mission, which is the military mission."¹²

We recognize the important role played by the military in non-conflict activities and the unique role played by the National Guard in its stated missions. However, Section 402 focuses the efforts of this study on assessing the "ability of the alternative base-force to successfully prosecute a range of military operations . . ." Thus, *conflict is the purpose we assume in designing alternative force structures in this study.*

National Military Strategy

The end of the Cold War has dramatically reduced the threat facing the United States and its allies, and that diminished threat has significant implications for how the nation structures its forces. The National Military Strategy has established a broad philosophy about the missions of U.S. military forces in the post-Cold War era.¹³ Through its implementing documents and Illustrative Planning Scenarios, it provides guidance for structuring the force and helps identify the role of each Service in peacetime and conflict. Each Service's role, in turn, determines the range of possible structures and missions for its reserve forces.

¹¹Stephen M. Duncan, "DoD Drug Czar Speaks Out," *National Guard*, March 1992, p. 25.

¹²Nunn, "Forging Civil-Military Cooperation . . .," *op. cit.*

¹³Colin L. Powell, *The National Military Strategy 1992*, Joint Staff, Department of Defense, Washington, D.C., 1992.

The current National Military Strategy is built upon four objectives: strategic deterrence and defense, forward presence, crisis response, and reconstitution.¹⁴ The latter three are relevant to the purposes of this study.¹⁵

Forward Presence

A key feature of U.S. forces over the past 40 years has been their worldwide forward presence, which is intended to "show our commitment, lend credibility to our alliances, enhance regional stability, and provide a crisis-response capability."¹⁶ Since the end of World War II, the United States has permanently based forces in a number of locations around the world. The forward presence of *land-based* forces "sends explicit signals about the firmness of U.S. commitment in a region."¹⁷ The bulk of these forces has been in Europe, with the total there approximately 323,000 in the late 1980s.¹⁸ But we have also stationed forces in Korea and Japan and have had smaller contingents in a number of other locations, such as Panama, Turkey, and Iceland.

The U.S. Navy has maintained continuous forward presence by "home porting" ships in Japan and in several ports in the Mediterranean, by maintaining naval bases overseas, and by maintaining deployed carrier battle groups, Marine expeditionary units, and surface action groups in foreign oceans. This practice also provides a clear message concerning U.S. regional interests and fosters regional stability.

Forward-deployed forces strongly influence force structure and the balance of active and reserve forces. Any substantial forward presence requires a rotation base large enough so that overseas assignments do not become onerous.¹⁹ Traditionally, the rotation base and forward elements have generally been drawn from active forces. In the cases of the Army, Air Force, and Marine Corps, each Service's forward deployed forces and rotation bases account for less than the total force structure requirement. Hence, reserve com-

¹⁴*Ibid.*, pp. 6-7.

¹⁵Reserve forces provide additional formations, personnel, and equipment in times of crisis. However, the current nature of U.S. strategic deterrence and defense is that it requires no such augmentation.

¹⁶Powell, *op. cit.*, p. 7.

¹⁷Department of Defense, 1991 Joint Military Net Assessment, March 1991, p. 4-2.

¹⁸These forces consisted of approximately 5 division equivalents and 700 combat aircraft. Richard L. Kugler, *The Future U.S. Military Presence in Europe: Forces and Requirements for the Post-Cold War Era*, RAND, R-4194-EUCOM/NA, 1992, p. 18.

¹⁹For example, the commander of Air Combat Command believes that the CONUS active duty rotation base should be 1.5 times as large as that of the forward deployed force. General J. M. Loh, speech to the AFA Air Warfare Symposium, Orlando, Florida, January 31, 1992.

ponents provide additional fully equipped and manned units needed after mobilization. The Navy is different. In addition to rotating people, it must rotate its ships. With some exceptions, for example non-deploying minesweepers, the Naval Reserve provides additional manpower to augment active force, rather than providing fully manned ships.

Although forward presence has traditionally been the role of active units, the obvious question arises: In the future, could the periodic deployment of reserve units "show our commitment, lend credibility to our alliances, enhance regional stability, and provide a crisis-response capability." In the past, reserve units routinely participated in exercises in Europe, and augmented maintenance facilities overseas during their annual training periods to assist in eliminating maintenance backlogs. They have also participated in civil engineering exercises that the Army routinely conducts in Latin America.²⁰

Without knowing the precise nature of a reserve forward deployment, we note that staffing any part of a continuous forward presence with reserves poses the most difficult and perhaps most expensive challenge.²¹ Given two-week active training periods each year and the time it would take to move the unit to the overseas location, more than 26 reserve units must be found to replace an active unit stationed overseas.²² We also note that in foreign countries, particularly in Europe, facilities and ranges are limited and, in the face of a significantly reduced threat, the willingness of host nations to permit extensive training exercises in the countryside has diminished.

Discussion with senior Air National Guard and Air Force Reserve officers suggests that they could maintain a *small* forward presence if they were free to rotate air crews frequently, as often as weekly, and could maintain a very sizable rotation base made up of volunteers from a large number of CONUS-based units.²³

²⁰See the discussion by Senator Stevens in the Senate Appropriations Defense Subcommittee Fiscal 1993 Appropriations Hearing for Programs Under Its Jurisdiction, May 21, 1992. He suggests that the National Guard and reserve could provide approximately one-third of the approximately 150,000 personnel planned to be forward deployed in Europe.

²¹We understand from discussions with the Joint Staff that there are no cost savings associated with a continuous rotation of reserve units in Europe. We did not undertake an independent assessment of the cost of such a program.

²²There may be potential for significant cost savings with an intermittently forward deployed reserve combat force in Europe, and, under some circumstances, that might not involve significant risks. However, examining the cost and effectiveness of such a force requires a re-evaluation of the National Military Strategy, which is beyond the scope of this study. Thus, although we recognize the potential importance of the issue, we assume that combat forces deployed outside the United States require a continuous presence.

²³Study group discussions with ANG and USAFR leaders.

Although the reserves could possibly provide a small forward presence, it would be difficult to maintain a sizable forward presence using reserves, for the reasons discussed above. Such a small presence would not be appreciable enough to significantly alter conclusions about the appropriate active/reserve mix. Given these considerations, the alternatives we developed assume that all combat forces forward deployed outside the United States are active.

Crisis Response

To meet the crisis response objective, U.S. forces must be able to project power and decisively use military force when and where it is needed. The Defense Planning Guidance (DPG) assigns roles to the active and reserve components: Active forces are to "supply combat and support forces for the initial response to contingencies that arise on short notice."²⁴ Reserve forces "contribute mobility assets in short notice crisis, support and sustain active combat forces and provide combat forces in especially large and protracted contingencies."²⁵ And, most important, the DPG recognizes that "Mobilization of some Reserve Component combat forces can provide the force expansion need to enhance the U.S. capability to respond to another contingency."²⁶

As the DoD sees it, the National Military Strategy and the specific scenarios that "describe in greater detail . . . (the) plausible circumstances that might call for the application of U.S. military power"²⁷ define the future roles and missions that would be assigned to reserve units.

Large protracted or concurrent contingencies and long developing crises are the situations in which reserve forces—especially reserve combat units—can be recalled, trained (if necessary), deployed, and employed to support, augment, reinforce, and sustain active forces. The availability and responsiveness of reserve units count heavily in determining the most effective active-reserve mix, but cost savings and appropriateness of tasking to the "part-time" nature of the reserve have been considered.²⁸

²⁴Department of Defense, *Defense Planning Guidance* 1992.

²⁵*Ibid.*

²⁶*Ibid.*

²⁷DoD, 1991 *Net Assessment*, *op. cit.*, p. 1-5.

²⁸*Ibid.*, p. 11-10.

In short, crisis-response requirements dictate the kinds of active/reserve mixes that are feasible in designing alternative force structures. We have relied on the DPG, particularly the Illustrative Planning Scenarios, for guidance on crisis response in developing alternative forces. However, this study provides an independent assessment of “the ability of . . . alternative (forces) to successfully prosecute a range of military operations” (see Chapter 6).

Reconstitution

During the Cold War, the United States maintained forces in the active and reserve components to counter the global threat represented by the Soviet Union. Now, this global threat has disappeared and the forces required for a global conflict will not be retained in the force structure. The reconstitution objective establishes the goal of preserving “a credible capability to forestall any potential adversary from competing militarily with the United States.”²⁹ One component of this objective is preserving the potential for expansion of air, ground, and maritime forces.³⁰ This part of the reconstitution requirement provides a potential additional role for reserve forces: to retain the core force structure elements required to implement a reconstitution strategy. Although we did not conduct an independent analysis of the Base Force’s ability to meet this objective, the alternative forces we developed and assessed reflect that objective.

Criteria for Structuring Forces

Since the early 1970s, Total Force Policy has reflected two, sometimes competing, views concerning the structure and mix of active and reserve forces. DoD policy, which embodies one view, holds that cost-effectiveness considerations alone should determine component assignment. A second view argues that some reserves must participate in any conflict to ensure that the commitment of forces truly represents the political will of the American people.

Cost-Effectiveness

The emphasis on cost-effectiveness was clearly seen in Chapter 2 in both the original Laird memorandum and the subsequent move by Secretary of

²⁹Powell, *op. cit.*, p. 7.

³⁰The other components include stockpiling critical materials, protecting the industrial base, and investing in basic science and high-payoff technologies. *Ibid.*, p. 25.

Defense Schlesinger to make Total Force Policy the official “policy” of the Department of Defense. It was also seen in Chapter 3 on how Total Force Policy was *implemented* during the development of the Base Force. While there was some discussion about what constituted the appropriate costs to be included in any analysis and how to measure effectiveness, the cost-effectiveness criterion has dominated the debate for over 20 years.

The principle of cost-effectiveness implies no explicit assumptions about the roles of reserve forces. Instead, those roles are based on scenario requirements—the National Military Strategy—and whether reserve units can mobilize and train-up to meet desired deployment dates at less cost than active units.³¹ However, there is another view on what criteria should be used to structure active and reserve forces.

The Political Consideration

Several of the military service organizations and many in Congress³² maintain that including reserve forces in any significant deployment will serve as a check on the president, precluding a so-called “presidentially declared war.” In other words, the need to mobilize the reserves for any significant contingency will make it incumbent upon presidents to be certain that they have that support before committing the nation to a contingency. Some people argue that it is not just any reserve forces, but reserve *combat* forces that need to go early in any deployment to ensure the support of the American public.

The late Army Chief of Staff General Creighton Abrams is credited with the argument that presidents “would have to seek, or feel assured of, popular support for a major conflict, by requiring them to mobilize citizen-soldiers.”³³ More recently, Congressman Les Aspin argued:

[I]n some contingencies . . . the decision to go to war and risk large numbers of American lives must be shared with, and supported by, the American people and Congress. Abrams and Laird set us on the right path for dealing with this issue, by insisting that it involve a decision to send America’s citizen sol-

³¹The CBO defines the “criteria (that) deserve consideration” as costs, reserve response times, total capability needed, and limits on the peacetime use of reserves. CBO, *op. cit.*, p. ix.

³²See Hearings before the Manpower and Personnel Subcommittee of the Senate Armed Services Committee, April 8, 1992.

³³Lewis Sorley, “Creighton Abrams and the Active-Reserve Integration in Wartime,” *Parameters*, Summer 1991.

diers into war. If we stick to that path, we'll make the right decisions.

The largest role for the Guard's combat forces should be a major regional contingency, like the one we fought in Operation Desert Shield/Desert Storm.³⁴

While we recognize that these arguments have developed a certain face validity and are driving the debate, our own analysis suggests there is some ambiguity in their logic.

Limiting Presidential Action. The history of the presidential call-up authority discussed in Chapter 3 clearly demonstrates that, in order to get the DoD to expand the role of the reserves in the total force, Congress has been willing to grant the president expanded authority to call up the reserves *without* notifying Congress or declaring a national emergency. Specifically, to encourage the DoD to make more use of the reserves, Congress has increased the call-up authority from 50,000 to 100,000 and finally to 200,000. In addition, during ODS/S, Congress amended the law in response to the Secretary of Defense's argument that the 180-day limit was a factor in his decision not to call the roundout brigades. Late in the Persian Gulf crisis, as the deadline for Iraqi response to the ultimatum approached and the United Nations had passed the resolution authorizing the start of offensive operations, President Bush put the question to Congress. While there were many reasons that President Bush asked Congress for an affirmative vote, the issue of the reserves did not seem to be a significant factor, as compared to the issue of a "constitutional crisis" under the War Powers Act.

Popular Support. The available evidence also fails to confirm the notion that popular support is ensured by calling up the reserves. Generally, three types of data relate to this argument: opinion polls, employer support for activated reservists, and anecdotes. The opinion polls showed clear support for the president's actions. His approval ratings reached the highest levels of his administration.³⁵ For example, 84 percent of those polled supported the

³⁴Congressman Les Aspin, Chairman, *Combat Power from the Reserve Component*, memorandum to members, Committee on Armed Services, May 7, 1992, p. 3. The former President of the Adjutants General Association of the United States, Major General Robert F. Ensslin, Jr., has also argued that "for larger scale operations, the Guard and Reserve—to include major combat units, should have to be called. The reasoning is threefold; first, the importance of involving the Congress and the people; second, to allow the diplomatic and political processes to be as fruitful as possible; and third, the Guard and Reserve's proven ability to perform the mission and the attendant peacetime cost savings [emphasis added]." Major General Robert F. Ensslin, Jr., the Adjutant General of Florida, *Public Policy Dimensions of Base Force and Reconstitution Strategy for the National Guard*, February 1, 1992, p. 9.

³⁵Including ABC News/Washington Post, CBS News/New York Times, Gallup/Newsweek, and the Associated Press.

president's four objectives. However, as Binkin points out, public support for sending troops to Saudi Arabia gradually declined between August and December 1990 as measured by the Gallup Poll.³⁶ Thus, although it would not be correct to conclude that mobilizing reserves caused the decline, evidently it did not increase public support. Also, it does not necessarily follow that the public's approval of the president's actions stems from his decision to mobilize reservists, or that it is in any way conditional upon mobilizing combat forces. Certainly, one could argue that people tend to support friends and relatives who have been mobilized. But supporting a friend or loved one does not automatically translate into support for the activity itself. In fact, having a relative sent into a life-threatening situation could provoke a negative reaction. Indeed, at least one commentator saw President Bush's activation of the reserves as "carrying some political risk."³⁷

Employer support to reservists during the war was also strong. Studies commissioned by the National Committee for Employer Support of the Guard and Reserves showed employers solidly behind their reservist employees.³⁸ For the most part, employers provided the support required by law willingly. Many provided far more than the law stipulated. But, as in the opinion polls, this backing neither confirms nor denies support for the war as a function of mobilizing reserves.

Nor is the anecdotal evidence any more definitive. Certainly, a number of officials, including Secretary of Defense Cheney, asserted that the mobilization of reserves also mobilized support for the war.³⁹ And there were stories of cities following the daily activities of the local reserve units. Doubtless the people at home supported their local unit, but, again, that does not mean that they supported the war because their local unit was called up. Had the war been more protracted and the casualties more severe, strong identification with the reserves could have just as easily eroded support.

Nevertheless, the fact that the objective evidence neither supports nor refutes the two assertions may be irrelevant in terms of structuring forces—if

³⁶The degree of support was assumed to be the percentage of those polled who approved of the U.S. decision to send troops to Saudi Arabia as a defense against Iraq. Martin Binkin, *Who Will Fight the Next War: The Changing Face of the American Military*, The Brookings Institution, forthcoming. Also see *The Gallup Poll Monthly*, No. 304, January 1991.

³⁷Michael Oreskes, "Bush Regains Record Rating in Crisis," *New York Times*, August 22, 1990, p. 14.

³⁸Performed by William Mercer Company and by Towers and Perrin.

³⁹General Schwarzkopf noted that, "I was in favor of this move (calling up the reserves): I'd always been convinced that one of the terrible mistakes we'd made during the Vietnam War was *not* mobilizing—Washington sent our soldiers into battle without calling on the American people to support them." Schwarzkopf, *op. cit.*, p. 323.

congressional leaders or senior policymakers believe that the close integration of the reserve with active forces serves an important function. That belief is *politically* sufficient to shape the alternative structures developed in this study. This study designed several forces that integrate the two components in such a way that any serious conflict requires reserve participation, in both support and combat roles. Below, we discuss the different models of active/reserve integration that we used for structuring these forces.

Integration of Active and Reserve Forces

The current structure of active and reserve forces has elements that echo past debates. Our military today contains both *expandable* and *fully formed* elements. It is expandable in that it uses roundout combat units, associate units, and support units. It is also contains a second, fully formed force in its National Guard combat divisions. Different models for integrating active and reserve forces, and the levels of organization at which the models are applied, can have considerable effects on the rate at which reserve combat forces can train and deploy for contingencies. (See Appendix A for a brief discussion of how the Israelis and Germans integrate their active and reserve forces.)

Type of Integration

The U.S. military services differ considerably in the extent to which active and reserve forces are integrated in wartime and in peacetime. Several of the current models are reviewed below.

Roundout and Roundup. The roundout concept was introduced in 1974 when the Army wanted to increase the number of active divisions from 13 to 16 divisions and the Secretary of Defense would not give them additional resources. The idea was that one brigade in each of the three new divisions would be in the National Guard and would "round out" the parent division upon mobilization.⁴⁰

Reserve roundout units were expected to deploy at the same time or as soon as possible after their parent active units.⁴¹ Army policy is that a reserve roundout unit receives the same equipment priority as its parent unit. The

⁴⁰In addition to rounding out the three new divisions, the Army rounded out an already existing division with a reserve brigade and moved significant combat service support missions into the reserves.

⁴¹Army Regulation 11-30, CAPSTONE Program, 1 September 1983.

roundout unit is also supposed to have a close training association with a parent active unit, receiving considerably more active support for its training than a comparable stand-alone reserve unit that is part of a fully formed reserve division.

The actual readiness of the three roundout brigades called during the Persian Gulf War and their training experience are discussed in Chapter 3 and are the subject of further analysis in Chapter 8.

Roundup is a related concept to roundout. Roundup units are available to deploy after an appropriate period of training and add capability to fully formed active divisions already in theater; a roundup unit augments the usual force structure of the parent unit.

Integrated Active and Reserve Units. The Army also mixes active and reserve units in support commands that are sometimes commanded by reservists. For example, a reserve-commanded Corps Support Command (COSCOM) has both active and reserve subordinate units.⁴² A reserve COSCOM's active subordinate units support early responses in contingencies before the reserve headquarters can be mobilized and deployed and provide a base in the theater of operations on which the reserve COSCOM can build.

Associate Units. The Air Force developed a hybrid unit that combines active and reserve personnel into a single unit upon mobilization. In this approach to active/reserve integration, an Air Force Reserve "associate" unit trains on its affiliated active unit's equipment. The associate unit's air crew personnel commonly are mixed with active personnel for peacetime missions, and associate unit maintenance personnel participate in the maintenance of the active unit's equipment.

This associate concept is best suited for units whose collective training does not require the simultaneous presence of all unit personnel. Thus, the concept fits units that are described by the following conditions:

- Crews operate equipment but do not have to coordinate their activities with many other crews.

⁴²The Army currently has seven COSCOMs, four of which have active headquarters and three have reserve headquarters, and it has four theater area army commands (TAACOMs) with two of the headquarters active and two reserve. These support commands provide the echelons above division and echelons above corps combat service support functions, including civil affairs, medical, water production, transportation, and other types of units.

- Crews are the limiting wartime factor, rather than the equipment, because the equipment can be operated around the clock.
- The wartime environment for the units must support crew replacement because crew must be rotated through the equipment.

Augmentation, Fillers, and Cadres. One of the most persistent issues in the historical debate about active and reserve forces has been the use of individual reservists to augment active units, to provide attrition fillers, or to be part of a cadre system. While it is the general policy of the United States that the reserves consist of fully formed units, in fact, implicit cadre-type units exist, and reserve personnel are used to augment active units. For example, because of the need to provide forward presence through lengthy overseas deployments, most Naval Reserve personnel augment active Navy units and shore-based organizations. Although formally belonging to reserve units, these personnel can be called up as individuals to provide additional manpower to support high levels of wartime operations of deployed forces and to provide other wartime support.

Moreover, a form of cadre exists today in that reservists fill out the crews of Naval Reserve ships. Typically, 65 percent of the crews on escort frigates of the Naval Reserve ships are on active duty. The remaining crew members are drilling reservists. The Congressional Budget Office recently developed an option for an Army active duty cadre division to be manned by approximately 3,000 career officers and Noncommissioned Officers (NCOs)—compared to a normal division of approximately 17,000 officer and enlisted personnel—that would be filled out with IRR personnel with prior military service.⁴³

Flexible Integration. Another type of integration involves selected use of reserve units depending upon the specific conflict. Mobilization planning for the Marine Corps Reserve and the Air Reserve Component allows each Service to activate different echelons, depending upon the specific needs. For example, elements of the 4th Marine Division might be called up as companies, without their battalion headquarters, or whole battalions might also be activated. In the Air Force, reserve units are organized as wings in peacetime, but are most likely to be called up as squadrons and sometimes flights. For example, two reserve F-16 squadrons and one reserve A-10

⁴³Congressional Budget Office, *Meeting New National Security Needs: Options for U.S. Military Forces in the 1990s*, Congressional Budget Office Paper, February 1990, pp. 14–20.

squadron were called up during ODS/S without the other squadrons in their wings or their wing headquarters.

Although the Army did not have a plan for flexible integration of active and reserve units in its war plans, during ODS/S it implemented a *de facto* unit integration strategy by activating numerous company- and lower-level support units without their battalion headquarters.

Active Leadership of Reserve Units. During the course of our discussions with Army senior leadership, some proposed the routine rotation of active officers and NCOs to key leadership and staff positions with reserve units. Reserve units best suited to this type of integration are those with complicated unit functions, requiring highly developed synchronization and coordination skills of the units' leadership.

An example of this type of integration is found in the Marine Corps Reserve. Active duty officers command at the regiment and division level and reserve officers command at battalion level and below. A significant number of active duty personnel serve as inspectors and instructors at battalion level and below, assisting in the administration and training of reserve units. The inspectors and instructors have not generally filled wartime positions in the units they support; however, the Marine Corps is currently reevaluating this policy.

Despite the favorable experience of the Marine Corps and their proven ability to integrate both active and reserves into a single Marine Corps, a number of factors, often cited by Army National Guard and Army Reserve officers, would militate against this type of integration. It is claimed that active duty personnel assigned to Army reserve component units often take significant amounts of time to adjust to the reserve environment and typically lack specialized knowledge of the Army National Guard and Army Reserve.⁴⁴ In addition, unless service with a reserve unit is seen as career enhancing (e.g., a substitute for joint duty), the most promising active duty personnel will resist assignment with the reserve component unit. Finally, it is argued that assignment of significant numbers of active personnel to senior leadership positions would reduce career opportunities for reserve personnel, negatively affecting reserve retention.

Hybrid Integration. It is notable that none of the Services depend on a single integration strategy but rather employ a mixture of approaches. For example,

⁴⁴See Brauner and Gotz, *op. cit.*, pp. 40–41.

not all active Army divisions are rounded out by reserve brigades; most reserve maneuver brigades are part of Army National Guard divisions. Similarly, the Air Reserve Component employs a mixture of unit-equipped and associate units. The force structures developed in Chapters 8, 9, and 10 also employ a mixture of integration approaches.

Level of Integration

The level of integration is as significant as type in determining how long it takes for a unit to be brought to standard. In the Army during ODS/S, a statistical analysis shows that smaller CSS units deployed faster than larger units. The Army Chief of Staff suggested that it takes four times longer to make a reserve division ready than a reserve brigade, even though the brigade is the unit immediately subordinate to the division.⁴⁵ The Marine Corps experience during the Persian Gulf conflict speaks directly to this issue and suggests that reserve companies were more easily integrated into active formations and performed better than reserve battalions or regiments.

The training readiness of reserve battalion and regimental staffs was the toughest problem for reserve forces in SWA. Unlike at the company/battery level, significant shortcomings were present at battalion and regimental level before mobilization and were not rectified, or for the most part even addressed, during training workup. . . . These shortcomings were of command and control (C&C). Although active battalions and regiments have many of these same problems, and for the same reason, the shortcomings were much more pronounced in reserve units. As a result reserve battalions and regiments were marginally ready to perform their wartime missions. One very senior Marine . . . officer summed it up as follows: "Company and below were great, battalions were marginal, regiments were ineffective."⁴⁶

Each reserve component typically is integrated into active battle formations at different echelons, as shown in Table 5.1.⁴⁷ The "typical" level of wartime

⁴⁵Inside the Army, May 2, 1992, p. 2

⁴⁶Cancian, *op. cit.*, p. 10.

⁴⁷Foreign systems also display differences in levels of integration and the levels at which reserve units have active commanders. The German Bundeswehr, for example, has a system similar to company and battalion roundout but with active leadership of the roundout units. Some Israeli Defense Force (IDF) reserve brigades round out active divisions, while others are part of all divisions composed solely of reserve brigades. IDF divisions, whether primarily active or reserve, are led and principally staffed by active personnel. Commanders of reserve brigades may be reservists but are more typically active personnel. See Appendix A for more information on the Bundeswehr and IDF.

Table 5.1
TYPICAL RESERVE COMPONENT LEVEL OF INTEGRATION

Reserve Component	Peacetime Organization	Wartime Integration	Active Gaining Echelon
Army National Guard	Roundout/roundup brigade	Brigade	Division
	Roundout battalion	Battalion	Brigade
	Division	Division	Corps
Army Reserve	Support battalion	Detachment, company, or battalion	Battalion, group, or support command
	Support command	Support command	Corps or theater army
	Support command		
Air National Guard	Wing	Squadron or flight	Wing
Air Force Reserve	Associate wing	Associate wing or squadron	Wing
	Wing	Squadron or flight	Wing
	Ship	Ship	Task force or group
Naval Reserve	Augmentees	Augmentees	Ship- or shore-based unit
	Division/wing	Battalion/squadron	Expeditionary force
	Division		
Marine Corps Reserve			

integration was determined by Service doctrine or, when applicable, by ODS/S experience.

Typically, reserve components provide individual units or individual people to fill out active formations. These are generally small self-contained units that provide firepower or specialized support and, with few exceptions, are not required to master the complicated battle management, integration, and command and control skills. For example, the Naval Reserve ships are minesweepers and escort frigates. The Naval Reserve is not expected to undertake independent fleet operations. In the Air Force, reserve component units provide specialized support capabilities and flights and squadrons. They are not expected to take over whole combat sectors and to develop Air Tasking Orders, allocate aircraft, plan strike packages, or perform any of the

other higher-order battle management tasks.⁴⁸ In contrast, the Army National Guard has traditionally been organized as fully formed brigades and divisions. They are expected to function fully in that capacity and be responsible for all operations in their appointed combat sectors. Given limits on the time and cost of peacetime training, these Army National Guard formations require the longest post-mobilization training periods.

Summary of Defining Characteristics for Developing Force Structure Alternatives

Our reviews and interviews led us to identify four broadly defining characteristics that distinguished among the various extant force structure models. We then considered how current economic and political conditions and the missions for U.S. forces dictated the defining characteristics for the alternative structures we could develop. They emerged as follows.

Purpose: Although we recognize the important role played by the military in non-conflict activities and the unique role played by the National Guard in its stated missions, the study mandate dictates that *conflict* is the purpose we assume in developing alternatives.

National Military Strategy: The National Military Strategy defines the "expected future military missions" and identifies other constraints such as the requirement for forward presence and crisis response. Given various considerations, the alternatives we developed assume that all combat forces forward deployed outside the United States are active. The crisis response objective implies that if reserve combat forces are to participate in regional conflicts, they must be structured so that they can mobilize, train up, and deploy within relatively stringent time frames. We have relied on the *Defense Planning Guidance*, for guidance in developing forces. However, this study provides an independent assessment of the ability of alternative forces to "successfully prosecute a range of military operations."

Criteria for Structuring Forces: In structuring forces, we have considered both cost-effectiveness, usually considered the central principle of Total Force Policy and the primary criterion for force structuring, and a political criterion—that reserve combat forces should be included early in any deployment to ensure that the commitment of forces truly represents the political will of the people. As we have indicated, the evidence neither

⁴⁸This point was stressed in an interview with the Air Force Chief of Staff on July 22, 1992.

refutes nor supports the logic implied by that criterion. However, as the debate over the roundout brigades in ODS/S suggests, this issue has sufficient political weight that it must be considered in structuring alternative forces. We have developed organizational variations that require reserve participation in combat and support roles.

Integration of Active and Reserve Forces: How active and reserve forces are integrated reflects the preceding three defining characteristics and dictates the form of alternative force structures. The types and level of integration considerably affect the rate at which reserve forces can train up and deploy in contingencies. We have developed and analyzed the cost-effectiveness of force structures that included various combinations of the following *types of integration*: roundout and roundup; integrated active and reserve forces; associate units; augmentation, fillers, and cadres; flexible integration; active leadership of reserve units; and hybrid integration. We also developed and analyzed the cost-effectiveness of forces at *different levels of integration*, ranging from company to brigade level.

These defining characteristics provide the conceptual framework for designing forces. To fill in that framework, we need to know more specifically what U.S. military forces are expected to accomplish—that is, the *demand* they must meet—and what we can realistically expect about *supply*—or, in terms of our mandate, how long it takes various organizations to be prepared for combat. In the following two chapters, we describe the demand (Chapter 6) and supply (Chapter 7) that inform the alternative force structures presented in Chapters 8, 9, and 10.

6. Force Requirements for Future Military Missions

In the preceding chapter, we described the defining characteristics that provide a conceptual framework for developing alternative active/reserve force structures and mixes. Before we could develop those structures, we had to fill out the framework by considering what the military requirements of the mid- to late-1990s are likely to be. The *Defense Planning Guidance, FY 1994–1999* (DPG), is the authoritative statement of military requirements under the current National Military Strategy (NMS). It provides the performance goals for active and reserve forces.

The Illustrative Planning Scenarios (IPSs) contained in the DPG “illustrate for evaluation a substantial range of the kinds of crisis response capabilities U.S. forces might have to employ in various regions.”¹ However, given our congressional mandate, it was incumbent upon us to perform our own independent analysis, *using assumptions different from those incorporated in the IPSs* to understand the robustness of the alternative active/reserve force structures and mixes we will be developing and assessing. Alternative assumptions regarding the relative effectiveness of friendly and enemy forces, timing of events, and effectiveness of air forces can affect stated requirements. This was Senator Nunn’s point in saying that “If you let me write the scenarios, I can tell you before you do your study how it is going to turn out.”²

In this chapter, we discuss DoD’s force requirements and our analysis of military requirements based on alternative specifications of the variables mentioned above. We provide some general, unclassified conclusions. The more specific discussion of the IPSs and of our results is classified and contained in the classified companion report listed in the preface.

¹Quoted from Secretary of Defense, *Defense Planning Guidance*, Department of Defense, May 22, 1992, pp. Annex A-1/2, which is not available for public release.

²Hearing, April 8, 1992, *op. cit.*, p. 80.

Nature and Purpose of the U.S. National Military Strategy

The NMS is the definitive statement of the military goals and required force structure of the United States. Our information about the NMS came from various classified and unclassified sources, including the DPG; *Joint Military Net Assessment, 1991*; and the *National Military Strategy, 1992*. As stated in Chapter 5, the current NMS incorporates four essential elements: strategic deterrence and defense, forward presence, crisis response, and reconstitution. Since this project deals almost entirely with conventional forces, strategic deterrence is not germane.

The current NMS has a much greater regional focus than its antecedents. It requires U.S. forces to project *forward presence* and *respond to crises* in a variety of theaters. Specifically, it calls for a continued forward presence, not only overseas basing of forces, but prepositioning and periodic deployments, exercises, exchanges, or visits of forces. It also requires the capability to respond rapidly with large, heavy forces to major regional crises in Europe, Southwest Asia, and Korea and to lesser regional crises with smaller, lighter forces to theaters far from and near to the CONUS. Finally, it requires that the United States be able to *reconstitute* its military forces over a period of years should a "resurgent/emergent global threat" appear.

The seven Illustrative Planning Scenarios of the DPG describe the DoD's perception of the location and nature of the crises and of the specific required military forces, i.e., the numbers, types, and readiness of the air, land, and sea units to implement the NMS, at a given level of cost and risk. The DPG states emphatically that the IPSs should not be considered specific predictions that exhaust all possible threats to U.S. interests, that reflect a U.S. commitment to respond to a crisis in any particular way, and that indicate any strategic priority among regions. Moreover, *they are not meant to be the exclusive basis for sizing force structures*. The scenarios focus almost exclusively on requirements for crisis response. But force structures must be sized to support the other three elements of the NMS as well.

Before going further, we should define our understanding of the term *requirement*. So often used in defense analysis, this term can have multiple meanings and can lead to confusion. *Requirement* can connote precision and finality: "The United States needs x divisions to carry out this mission. Any less and the mission becomes impossible." There are occasions when the term can be used so definitively. Much more often, *requirement* means something less precise and fixed: "The United States needs x divisions to

perform a mission at an acceptable cost in time, lives, and materiel and for an agreeable degree of risk. With fewer than x divisions, we could still perform the mission but with higher costs and risks."

In this study, we use *requirement* in the latter sense. The forces specified as necessary in each IPS can be considered requirements in that sense. We are not in a position to decide independently what is an acceptable level of risk and cost. That is a matter for political and military judgment. However, the IPSs imply what that level is, and it is crystallized in the forces specified as needed for each scenario.

A General Description of the Scenarios and Their Requirements

The DPG provides a specific, detailed, and quantitative assessment of the forces needed for crisis response in seven scenarios.

How, When, and Where Crises Will Arise

These particulars are provided for each scenario:

- Major Regional Contingency (MRC)-East.
- MRC-West.
- MRC-Europe.
- Concurrent Contingencies.
- Lesser Regional Contingency (LRC)-Far.
- LRC-Near.
- Reconstitution.

Each MRC, including the Concurrent Contingencies, is constructed in the same way. The United States deploys an "initial response force" that is sized and configured (a) to prevent the enemy from achieving his objectives, (b) to "stabilize" the situation, (c) to enable the United States and its allies to conduct *limited* offensive operations at an acceptable cost, and (d) to prepare for the arrival of reinforcing units. Next, the United States deploys additional units—called the "decisive force"—sufficient to make major counter-offensive operations possible at an acceptable cost. The U.S. concept of operations is to deploy the decisive force *as quickly as lift will permit*. However, the specifics of its timing depend on the presence or absence of threats else-

where. Obviously, the prospect of a second, concurrent contingency could affect the timing of force deployments.

For each of the MRCs and LRCs, the DPG includes a simple time-phased force deployment list composed of the air, land, and sea forces required and the time each unit of those forces must arrive in the theater to achieve U.S. military objectives there. The lists specify which major combat units are needed for the initial response force and decisive force for each MRC. These are expressed as Army heavy and light brigades, separate brigades, and armored cavalry regiments; Air Force fighter and bomber squadrons; Navy carrier battle groups; and Marine Corps expeditionary battalions, units, and forces.

The scenarios do not include requirements for combat support, combat service support, and other below-the-line forces. In our force employment analysis, we calculated requirements for those forces based on the size of the combat forces to be supported and the character of the theater of operations.

The LRC scenarios are intended as the basis for evaluating military requirements for crises demanding smaller but much more rapid deployments. The last IPS addresses reconstitution. Necessarily, it has to be considerably more notional and general about requirements than do the scenarios depicting the MRCs and LRCs.

The scenarios are intended as an analytical tool for the formulation and assessments of specific defense requirements and programs. In particular, they are meant to enable “planners and programmers to devise and examine defense programs for approximate levels of readiness, sustainment, and other elements of the capability to employ decisive combat power.”³ However, as we said above, the assumptions underlying them are critical to the outcomes, and that consideration informed our analysis of the DPG military requirements.

DPG Military Requirements

The three conventional force pillars of the DPG are forward presence, crisis response, and reconstitution. We took the DPG’s statement of the requirements for both forward presence and reconstitution as posted. For the crisis response requirements, we focused on MRC-East, MRC-West, and MRC-

³*Ibid.*

Concurrent Contingencies. The LRC scenarios involve forces too small to significantly affect the structure and mix of active and reserve forces.

Figure 6.1 portrays a typical force requirements curve for a typical MRC. Ideally, a theater commander would like to have all forces in place at the start of a conflict. Realistically, forces will be introduced over time *as lift becomes available*. The curve indicates (a) when forces must be in place ("close") to stabilize the military situation and (b) based on available lift, when the decisive force should arrive in theater for low-risk prosecution of offensive operations.

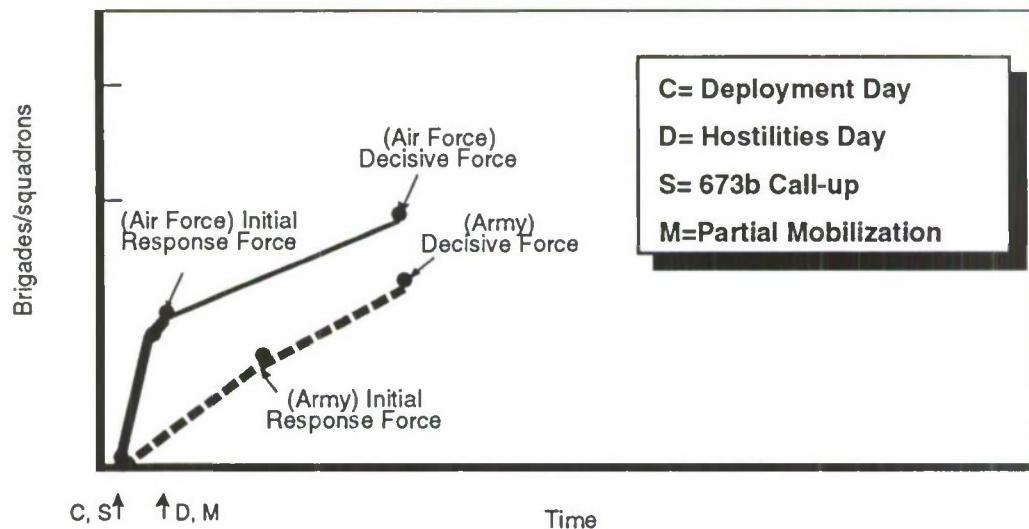


Figure 6.1—Force Generation

As we noted, according to the NMS, the United States must have the capability to successfully conduct two concurrent MRCs. The DPG's depiction of such a contingency and the military forces needed are contained in its Concurrent Contingencies scenario. Similar force generation curves can be drawn for that scenario.

The NDRI Force Employment Analysis

The purpose of our analysis was to ensure that the military requirements generated by the scenarios were consistent with a wide range of plausible assumptions and conditions. The point was to guard against the possibility that the performance of alternative active/reserve force structures is dominated by a particular set of scenario assumptions, which may or may not be plausi-

ble and analytically useful. For example, a scenario that contains an assumption requiring very swift arrival of U.S. forces in theater would tend to reduce the role of the reserves. Such an assumption may be warranted: There are situations in which U.S. forces must move very rapidly to achieve national objectives. However, such scenarios would have considerable effect on this study's results. Therefore, they require close scrutiny and careful testing.

Our analysis used the RAND Strategy Assessment System (RSAS), a global simulation that includes the capability to assess multiple theaters, national- and theater-level decisionmaking, and strategic mobility. The data bases used were originally constructed for and used at the 1991 and 1992 Global War Games conducted at the Navy War College. They include information about allies, enemies, and the U.S. force. For our study, other teams in the project derived alternative U.S. force mixes and assessed them against the force requirements, as appropriate.

Our force employment analysis was not confined to computer modeling. As useful as that can be, it cannot deal with some of the most important questions relating to such matters as cost and risk. A very important question is what are the costs and risks of not meeting some of those requirements. Force employment models can address this question, partially, by revealing some of the trade-offs between enemy penetration and shortfalls in U.S. forces delivered at particular times. However, once the enemy's advance has been halted, the computer models are much less helpful in shedding light on the costs and risks of beginning the U.S. counter-offensive to end the crisis at one time versus another.

Obviously, this is of particular relevance to the requirements for the decisive force package in each scenario. As we said, the decisive force is delivered after the initial response force arrives, and each MRC scenario in the DPG includes a time for its arrival, driven by the capabilities of the available lift. This closure time significantly affects the reserve ground combat forces: The greater the time needed to close the decisive force, the greater the chance that reserve combat units can participate in the decisive force phase of the campaign.

However, the greater the time needed to close the decisive force, the more friendly casualties may be suffered in the interval, the more difficult it may be to dislodge the enemy, and the more time he has to change the conditions of the battlefield in his favor—perhaps by using unconventional weapons.

In sum, the more time is needed to conclude the campaign, the more risk and uncertainty the United States must assume. It is very important to understand the components and magnitude of these risks, and computer models are of little use for this task.

To obtain this sort of information, we took two actions. First, we supplemented the computer-based simulation analysis with extensive interviews and discussions with commanders and staff in the contingency theaters. Second, we organized a political/military game at which very senior, retired general officers from all four Services were asked to evaluate these kinds of costs and risks. (Appendix B describes the game and some general insights that emerged.)

Our initial hypothesis was that once stability was established, it would not be a serious problem to wait for the arrival of reserve forces, even if those forces took additional time to be trained to a high level of combat proficiency. Without exception, the CINC staff and the game players held the contrary view: Provided lift was available, it was absolutely unacceptable to delay the delivery of the decisive force. During that delay, friendly casualties would inevitably be suffered and there would be an increased risk that the basic conditions of the contingency might change. For example, the friendly coalition might break down or the adversary might use weapons of mass destruction. As one player observed, "people are dying" while commanders wait for trained reserve combat units to deploy. There is no way to quantify this risk. It is possible that none of these negative effects of delay would, in fact, be suffered. However, the question is, why should the United States run the risks at all if the lift is available? Therefore, in our force employment analysis, we required the decisive force for each scenario to close as quickly as a strategic lift permitted.

NDRI Crisis Response Analysis

Using MRC-East as an example, we assessed U.S. force requirements as they relate to (1) how fast the United States and the Gulf Cooperation Council (GCC) states respond to an unfolding crisis and (2) the relative effectiveness of forces. To test the effect of varying air influence on the ground battle, we did examine some variations in sortie rate and munitions effectiveness of the air components. Of course, all Services were affected by the assumed deployment time lines of the various cases considered.

Assumptions. Any assessment of future conflict must deal with many variables whose values can only be estimated in advance. Since this study deals

with events occurring in the late 1990s, the range of values could be limited somewhat and the outcomes could be more reliably estimated. We varied the following major assumptions in the RSAS analysis:

- **Relative force effectiveness:** Even identically equipped military units can differ dramatically in effectiveness, as a result of training, morale, and national will. We changed the assumed effectiveness of friendly and enemy forces.
- **Event timing:** National and international decisions about responding to the opponent can significantly affect the requirement for military forces. The timing of decisions such as when to mobilize reserves or begin deployment can have major effects on the requirements for controlling a conflict, or even whether a conflict occurs.
- **Air effectiveness:** Operation Desert Storm established conclusively that, under some circumstances, tactical air strikes can significantly affect the ground battle. Yet, years of air strikes in Korea and Vietnam had relatively little effect on the tactical outcomes of those conflicts. Thus, the strategic value of air strikes is subject to argument. Future effectiveness of air strikes would depend on the terrain and the relative capability of U.S. and enemy air forces.

Analysis. As shown in Table 6.1, we typically constructed six cases for each theater covering the range of assumptions. The base response case is consistent with the IPS timing assumption. We then constructed a reasonable alternative that is identified as the slow response case in Table 6.1. The base response case's high relative force effectiveness assumes that the GCC states and the United States respond to impending aggression on approximately D-17 days so that the initial USAF commitment is in place on D-Day, the first MPS contingent has arrived, and ground forces on fast sealift are nearing the theater. It also assumes staunch performance by the GCC and air-to-ground effectiveness greater than during Operation Desert Storm. The actual force requirements for an initial response force and a decisive response force were determined by computer simulation, using the RSAS, and presented in the classified companion report.

The base response case, under the low relative force effectiveness, assumes virtual collapse of the GCC forces and highly effective Iraqi forces.

Table 6.1
MATRIX OF MRC CASES (RSAS ANALYSIS)

	Relative Force Effectiveness		
	High	Mid	Low
Base response case (C=S=D-17 M=D-Day)	1. GCC force nominal 2. Iraqi ineffective 3. USAF highly effective	1. GCC forces nominal 2. Iraqi nominal 3. USAF nominal	1. GCC forces ineffective 2. Iraqi effective 3. USAF less effective
Slow response case (C=S=D+5 M=D+60)	1. GCC forces nominal 2. Iraqi ineffective 3. USAF highly effective	1. GCC forces nominal 2. Iraqi nominal 3. USAF nominal	1. GCC forces ineffective 2. Iraqi effective 3. USAF less effective

NDRI Crisis Response Findings and Summary

The force structure implications of our findings are evaluated in Chapter 11, but several general points should be made here:

- First, we found that the range of theaters contained in the DPG are representative of the types of conflicts that U.S. forces must be able to successfully confront. Therefore, we felt no need to add additional theaters beyond MRCs East and West.
- Second, the requirements for those MRCs are very sensitive to the scenario assumptions we examined. We are impressed by the degree of sensitivity to changes in the mobilization and deployment times. Even small changes in these assumptions powerfully influence the size and timing requirements for the initial response force. In some cases, delays of one or two weeks in mobilizing and deploying U.S. forces can quickly drive the initial response force requirement above the ability of U.S. lift to deliver.
- Third, the Illustrative Planning Scenarios in the DPG are based on conservative, but not worst case, assumptions. That is, the DPG's versions of MRCs East and West make plausible and cautious assumptions. Indeed, in one sense, they are even optimistic; they do assume reasonably prompt national decisions to mobilize and deploy the force. A number of our cases are based on more pessimistic, but also reasonable, assumptions.
- Fourth, the critical decision concerning use of reserve combat forces is when to start offensive operations—that is, when the decisive force will be

committed to battle. Based on our discussions with CINC staff and our military/political game, the best military judgment was that the decisive force must be deployed as soon as possible and should not wait until reserve combat units can be ready.

NDRI Strategic Reserve Analysis

Maintaining an adequate strategic reserve is not explicitly discussed among the various tasks to be performed by U.S. forces. However, we believe that a strategic reserve is critical and that the functions it serves should be a part of U.S. force requirements.

It is difficult to estimate the appropriate size for this requirement because it isn't fully amenable to analysis: We cannot quantify what is needed to hedge against an unknown threat. Intuitively, it is not desirable to have a force structure that can satisfy the forward presence and crisis response requirements *only by deploying all the forces in the United States* and leaving none in reserve. It would be untenable to arrive at a point where there are literally no more forces, especially ground forces, that can be deployed for whatever purpose. At the same time, there must be some reasonable upper bound on the size of that reserve.

Another function of a strategic reserve is to provide a rotation base to permit protracted U.S. deployments. We can roughly assess the size of a strategic reserve required to serve this function. Unlike the strategic reserve's role as hedge, the required size of a rotation base is amenable to analysis. Possible scenarios might be crises in Europe or SWA, where adversaries have mobilized and deployed without attacking. U.S. forces might have to remain deployed in such situations for a prolonged "sitzkrieg." There is a mathematic relationship among the size of the deployed force, the length of individual or unit deployed tours, the force structure in the United States, and the extent to which some portion of it must be ready to deploy personnel to the contingency theater after returning to the United States.

In sum, using the approaches and assumptions described above, we derived a set of military requirements for future missions. The details of the DPG requirements, our analysis, and the resulting requirements are contained in the classified companion report. In the next chapter, we consider how likely it is that various organizations can be trained up and deployed to fulfill those requirements.

7. The Time It Takes to Prepare Military Forces for Combat

Given the time-specific requirement for military forces discussed in Chapter 6, the time it takes to prepare forces for combat will be an important factor in determining if a specific unit can be active or reserve. All units, active and reserve, must go through a similar generic process: They must be notified, they assemble their personnel and physical assets, complete any necessary training, and prepare administratively and physically for deployment overseas. However, American active duty units are generally expected to maintain high levels of readiness so they can deploy for contingency operations on extremely short notice; deployment is not delayed to allow time for them to improve their preparedness. As discussed in Chapter 3, reserve units go through a much more deliberate process starting with a political decision to exercise presidential authority to call up the reserve units, the timing of which is of great concern to military planners. In this chapter we provide estimates of the time it takes to move reserve units from peacetime postures to their wartime footing, with emphasis on those units where preparation time is most critical, i.e., the units that may take part in a major contingency.

Each Service Is Different

The Services take notably different approaches to mobilizing their reserve units. The Army's doctrine calls for most reserve units to proceed from their home stations to mobilization stations where shortfalls in equipment, personnel, and training are corrected and units are "validated" as ready to deploy.¹ The Marine Corps mobilizes and deploys its ground combat units at lower organizational levels than does the Army. Marine reserve battalions join with active and perhaps other reserve battalions under a regimental commander and staff who are members of the active duty Marine Corps. Air Force reserve combat and support units mobilize and deploy directly from their home stations, with virtually no time planned for acquiring additional

¹Validation is a formal process, unique to the Army, in which reserve units are declared to be mission-capable and ready for deployment. Validation is certified by mobilization station commanders, not by reserve unit commanders themselves.

personnel, equipment, or training. Notably, much of the Navy's reserve force serves as augmentation to units staffed primarily by active duty and full-time personnel. In the rest of this chapter we examine the process for each Service in turn, starting with the Army.

Preparing Army Reserve Component Units

Army reserve component units, both combat and support, play an important part in supporting any major contingency. The quicker they can be made ready, the more of the force structure can be in the reserves. These units need time for individual and unit preparation between call-up and deployment.² They must assemble, move to their assigned mobilization stations, conduct individual and collective training,³ prepare physically and administratively for deployment overseas, be validated as ready to deploy by the mobilization station commander, and prepare their equipment for movement to a port for shipment overseas. The critical and time consuming period of post-mobilization training depends in large measure on three elements:

- Missions: the range and difficulty of tasks the unit will perform in wartime. The broader and tougher the missions, the more extensive the preparation time needed.
- Performance objectives: the level of proficiency in the missions and constituent tasks. The higher the level of proficiency required, the greater the preparation needed.
- Peacetime activities and resources: the types and amounts of training the units conduct. The more and better the peacetime training, the shorter the preparation needed upon mobilization.

²Preparation and validation are needed because of the peacetime obstacles facing Army reserve forces, including (a) dispersion of units across wide geographic areas (e.g., typical battalions spread over a 150 mile radius); (b) limited time for collective training (nominally 39 days per year, including time for administrative functions and travel time to training areas); (c) personnel turbulence, estimated at 38 percent and 49 percent for grades E-5 and below for the ARNG and USAR, respectively; and (d) complicated chains of command, including different wartime and peacetime assignments and multiple oversight structures such as Forces Command, the Army Reserve Command, the National Guard Bureau, and the state Adjutants General. See, for example, U.S. Army Training Board, *Enhancing Reserve Component Unit Training*, U.S. Army Training and Doctrine Command, Fort Monroe, VA, 1987; and R. Buddin and D. Grissmer, *Skill Qualification and Turbulence in the Army National Guard and Army Reserve*, R-4280-RA, RAND, forthcoming.

³During the Gulf War call-up, some reserve units made an additional move from their mobilization stations to collective training sites where there were better facilities for gunnery training, more space for maneuver training, more active duty trainers, and an opposing force for conducting exercises.

Here we estimate, for different types of units, the time needed from the call-up until the units are ready to be sent overseas. We consider support units first, and then combat brigades. Our discussion of support units considers only "echelons above division"—i.e., support units that are assigned to the corps and theater Army levels. Support units at lower levels are considered part of the combat units themselves.

Support Unit Preparation Times

The Army divides support units into combat support (CS) and combat service support (CSS) units. CS units operate directly with combat maneuver units in wartime—e.g., field artillery, combat engineer, and signal (communications) units. CSS units provide services to combat and other units—e.g., medical, transportation, military police, and maintenance services.

The mobilization for the Persian Gulf War provided useful data on the times needed to prepare reserve support units. Virtually all such units met their expected validation and shipping dates and were generally regarded as having capably performed their missions.⁴ Our analysis uses results from a recent Arroyo Center⁵ study that traced 606 CS and CSS units through the mobilization process. That research used statistical regression methods to determine how a unit's characteristics related to the length of time from its initial call-up until it reached key points in the preparation process. The statistical analysis of the ODS/S data shows that only four variables account for observed variation in unit preparation times: (1) the type of unit, e.g., Service "branch," (2) the size and complexity of the unit as "measured" by the physical weight of its equipment, (3) the deployment phase (before or after 1 November 1990), and (4) the mode of transport to Southwest Asia (SWA), i.e., air or sea.

Figure 7.1 displays a statistical projection of the unit weight and mobilization timing relationships for support units that deployed to SWA by air. For example, a very small unit with only 40 short tons of equipment, based on the data collected during ODS/S, is projected to take about 11 days to be validated as "ready to deploy," whereas a large unit with nearly 300 short tons

⁴Discussions with Central Command war planners at Command Headquarters, MacDill AFB, Florida, August 6, 1992.

⁵Concurrent with our study, RAND's Arroyo Center was engaged in a project sponsored by the U.S. Army Forces Command to estimate post-mobilization training time for combat support and combat service support units located at Echelons Above Division (EAD) and Echelons Above Corps (EAC), and reserve roundout/roundup combat units. T. F. Lippiatt, J. M. Polich, R. E. Sortor, and P. K. Dey, *Mobilization and Train-Up Times for Army Reserve Component Support Units*, RAND, MR-125-A, 1992.

might take 16 days. These projected times should be adjusted for a few specific types of unit, e.g., increased by 9 days for chemical units and by 3 to 4 days for composite services, military police, and quartermaster units.

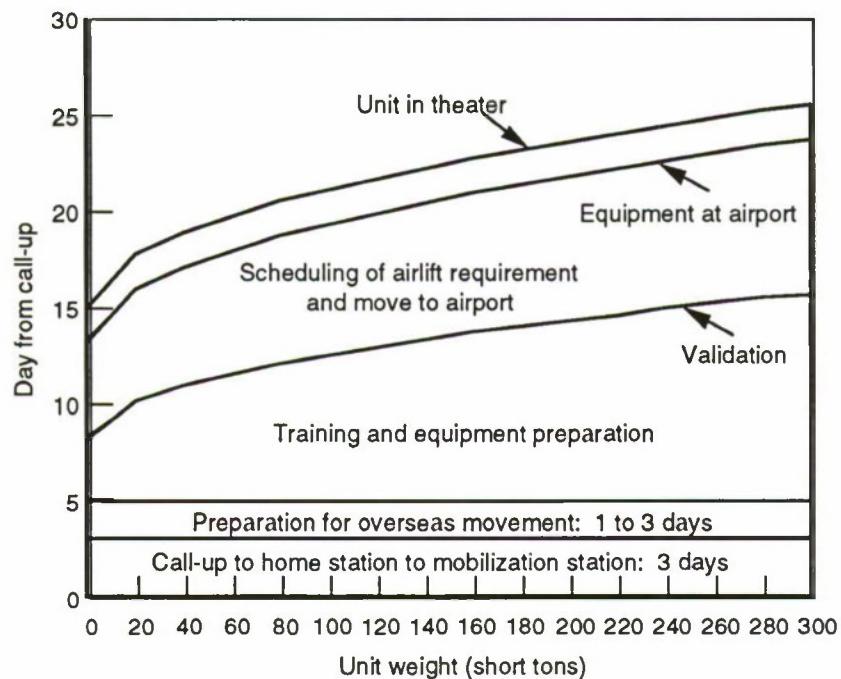


Figure 7.1—Average Preparation Times for Support Units That Deployed via Airlift

Similar regression analysis for units that deployed by sea yielded the average behavior depicted in Figure 7.2. These units could conduct some training while their equipment was in shipment. The typical unit had its equipment ready for movement to the sea port 15 days after call-up, and the equipment was available for loading onto a ship 18 days after call-up. Units were validated 29 days after call-up, on average, and then could travel by air to marry up with their equipment in the theater. Figure 7.2 indicates a nominal 22 days for ship loading, transit, and unloading, indicating that CS and CSS units arrived in theater about 40 days after call-up, on average.

The weight of a unit was not a significant factor in explaining preparation times for units that deployed by sea. However, artillery units, which have extensive equipment and some challenging integration tasks to master, aver-

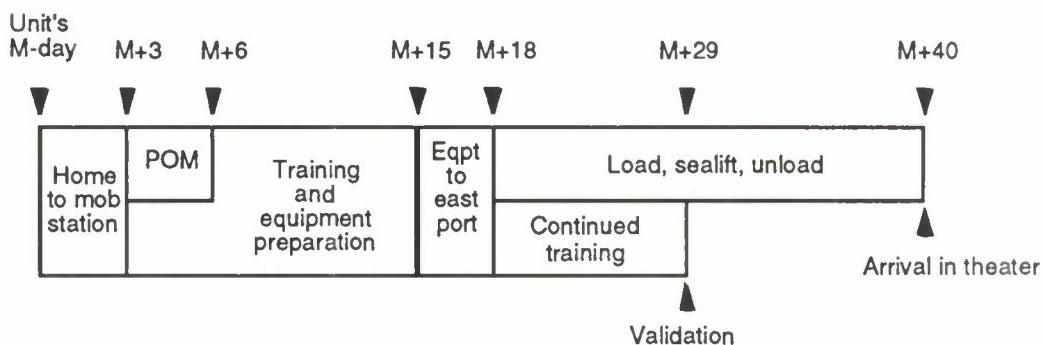


Figure 7.2—Average Preparation Time for Support Units That Deployed via Sealift

aged 8 more days than the typical unit for their equipment to reach a seaport. Medical, engineer, transportation, and composite services units averaged 2 to 4 days less than the typical unit.

Preparation Times for Reserve Roundout Combat Brigades

The most controversial issue of this study is the estimates of the time it takes to prepare the roundout brigades for combat. The rapid reinforcement portion of the Base Force includes three such units that fill out three active heavy divisions.⁶ There is considerable uncertainty about the brigades' post-mobilization training requirements today, and even more uncertainty about what they would be in the future depending on what reforms are enacted, what resources budgeted, and how new initiatives are implemented. We chose to be conservative to minimize risk to the country and individual reservists themselves. We follow Chairman Aspin's lead: "Where inadequate training and preparation would cost lives, any error should be on the side of safety."⁷ Moreover, in what follows, we note a number of promising procedural reforms, but until their effectiveness is proven, we believe it would be imprudent to reduce our post-mobilization training estimates. We do, however,

⁶Reserve combat divisions are not expected to play an important role in the initial response force or the early reinforcing force of a contingency (U.S. House of Representatives, Committee on Armed Services, *Fiscal Year 1993 National Defense Authorization Request*, transcript of testimony by General Gordon Sullivan, Chief of Staff, United States Army, February 26, 1992, Washington, D.C., 1992). Therefore we have not attempted to assess the times needed to prepare them.

⁷Chairman Les Aspin, *Combat Effectiveness for the Army Guard*, House Armed Services Committee, May 11, 1992, p. 5.

provide new estimates for organizational reforms that directly reduce pre- and post-mobilization training requirements.

Our estimate of unit preparation times for Army roundout brigades is based on (1) Arroyo Center research⁸ that focuses on the post-mobilization requirements to train troops to perform required combat skills, and (2) interviews with senior active and retired Army and Army National Guard officers familiar with the challenge of mastering the difficult battle management tasks required of higher level commanders.

Arroyo Center Estimates of Roundout Brigade Trainup Time. The Arroyo Center estimates are based on comparison and analysis of several sources:

- Training plans and programs for brigades from four different active duty divisions;
- The training for the three roundout brigades mobilized during ODS/S;
- The Department of the Army Inspector General's (DAIG) assessment of the brigade mobilization experience;
- Activities called for by the Army's Combined Arms Training Strategy (CATS), a standard program under development by the Army Training and Doctrine Command; and
- Observations and initial data from the Bold Shift pilot program during the summer of 1992.⁹

Building upon a framework developed by the Army, the Arroyo Center defined 12 primary steps through which a typical brigade should pass during its preparation for deployment.¹⁰ These 12 steps appear in Table 7.1, along with three time estimates for each. The 12 steps fall into four major categories:

⁸T. F. Lippiatt, J. M. Polich, and R. E. Sortor, *Post-Mobilization Training of Army Reserve Component Combat Units*, RAND, MR-124-A, 1992.

⁹Under Bold Shift, selected Army units are receiving extensive training and support from "sponsor" active units, including visits by mobile training teams and more intensive involvement in the conduct and evaluation of annual training. Training is being reoriented toward individual soldier and specialty skills, crew gunnery, and small-unit maneuver training through squad and platoon. Plans also include NCO and officer courses for personnel who need individual or leadership training.

¹⁰Additional time would be necessary to prepare a brigade's equipment for shipping and shipping the equipment to the theater. We estimate that about 7 days are needed to load and ship equipment (normally by rail) from a training site to the sea port of embarkation. In addition, sea transit time must be added (for example, about three weeks from the East Coast to Southwest Asia).

- Initial mobilization activities;
- Crew and platoon training, including initial equipment testing and preparation, refreshing vehicle commanders' and gunners' skills, use of a conduct-of-fire trainer (COFT), qualifying crews and platoons on tank and Bradley gunnery ranges, and carrying out squad and platoon drills and maneuver exercises;
- Task-organized training, including basic "attack" and "defend" exercises using mixed armor and mechanized infantry units; and
- Training recovery and preparation to move, including repairing and refurbishing equipment after extensive use in the field, and preparing equipment for loading and shipment overseas.

The optimistic estimates in Table 7.1 assume that at mobilization, crew-gunner and platoon-maneuver skills are high, equipment has been well maintained, skills have not been degraded by turnover or passage of time since Annual Training, and only minimal amounts of training (e.g., slightly less than active brigades' historical experience) are needed for company teams and for battalion task force and brigade operations. In other words, in Table 7.1 the optimistic estimate assumes that the Bold Shift initiatives are successful and that skills have not declined between the last Annual Training and the time of mobilization. The pessimistic estimates assume that gunnery skills are low, peacetime training has been dominated by gunnery training and hence platoon maneuver has not been extensively trained, unit equipment has not been well maintained, and higher-echelon training (company and higher) follows the times experienced in the ODS/S call-up, rather than active duty experience. In other words, the estimates in the pessimistic column assume that Bold Shift will not substantially improve the pre-mobilization readiness of reserve combat brigades.

Assessment. Judging from discussions with senior personnel¹¹ and the Arroyo Center teams that monitored Bold Shift during the summer of 1992, we think it prudent to use the figure of 128 days as an initial *best estimate* of the time it would take to accomplish the 12 tasks outlined in Table 7.1. These observers of Bold Shift were not encouraged by the initial 1992 Annual Training. They all noted the high crew turnover rates and the large number

¹¹Army Inspector General observers, senior personnel from U.S. Army Forces Command (FORSCOM), and the Office of the Deputy Assistant Secretary of Defense for Reserve Readiness, Training and Mobilization.

Table 7.1
**ESTIMATES FOR ARMY RESERVE COMPONENT COMBAT BRIGADE
 PREPARATION TIME**

	Assumptions About Success of Bold Shift		
	Optimistic	Intermediate	Pessimistic
Initial mobilization activities			
1. Mob order, home station to mob station	3	4	4
2. Mob station to collective training site	6	7	8
3. POM and individual training	2	2	3
Crew and platoon training			
4. Maintenance, gunnery preparation, COFT, tank/Bradley crew gunnery skills test	4	7	10
5. Gunnery Tables IV-VIII	14	17	22
6. Gunnery Tables XI-XII	5	6	7
7. Squad drills, platoon lanes, situational training exercises (STXs)	4	8	11
Training while task-organized			
8. Company team lanes and STXs	14	18	22
9. Company/battalion combined-arms live-fire exercise	6	7	8
10. Battalion task force operations	4	6	7
11. Brigade & battalion task force operations (could be at National Training Center)	10	12	12
Training recovery and preparation to move			
12. Maintenance, recovery, & prep for loading	7	10	14
Total number of days	79	104	128

SOURCE: T. F. Lippiatt et al., MR-124-A, 1992.

of reservists who were at formal schools, rather than in the field. While it is too early to determine the eventual success of Bold Shift, these and other problems are long standing and may prove difficult to eliminate.

In one way, the 128 day train-up time estimate is optimistic. The Army National Guard Combat Readiness Reform Act of 1992 (Title XI) and the Army's Bold Shift focus on maneuver training at the platoon level and below with "combat training for command and staff leadership including annual multi-echelon training to develop battalion, brigade and division level skills, as appropriate."¹² However, the consensus is that post-mobilization training cannot just be "used to complete the larger-unit training needed for deployment," as assumed by the authors of Title XI.¹³ The 12-step program outlined above focuses largely on "training the troops," assuming that commanders

¹²National Defense Authorization Act for Fiscal Year 1993, House Report 102-966, (Title XI) p. 233.

¹³Aspin, May 1992, *op. cit.*, p. 6.

and staffs will practice and hone their skills in parallel. However, our interviews with senior active and retired commanders—who had extensive operational experience—suggested that reserve brigade leaders might need considerably more time to master, practice, and demonstrate the ability to integrate and synchronize battle skills. This is consistent with problems of combat unit leadership highlighted by observers of the ODS/S call-up:

Of the several weaknesses noted in the brigades, poor leadership, especially in NCO ranks (SSG and above) and field grade officers, appeared the most debilitating. Lacking technical and tactical skills, many leaders could not make routine operations happen routinely. They demonstrated poor knowledge, insight, and command and control.¹⁴

Some senior observers have suggested the need for a final post-mobilization training exercise at the National Training Center. Such training would lengthen the post-mobilization period still more.¹⁵

We also note that the amount of available time often limits the ability of reserve leaders to get formal training and practice for their wartime positions. The GAO, for instance, compared the formal training background of unit leaders in reserve and active combat brigades and found that about half of the reserve leaders had completed the training programs normally prescribed for their duty position, while the comparable figure for active leaders was over 90 percent.¹⁶ Similarly, we interviewed senior observers at the Army's Battle Command Training Program (BCTP), who were familiar with the performance of reserve and active participants during BCTP division exercises (which include brigade commanders and staff). These observers noted that often the reserve commanders and their staffs were still *gaining knowledge* during these training experiences at Fort Leavenworth, rather than honing skills that active leaders had already developed.¹⁷

¹⁴DAIG, June 1991, p. 3. Similar problems were noted by the General Accounting Office review of ODS (GAO, 1991) and by NTC trainers that we interviewed about the train-up of two reserve component brigades during ODS.

¹⁵In two ways this would extend the estimate of the time until brigades would be ready for deployment: (1) the second and third brigades would have to await a turn at the NTC, and (2) each brigade would need about 10-14 more days to move to the NTC, check out and check in equipment, and the like.

¹⁶U.S. General Accounting Office, "Army Training: Replacement Brigades Were More Proficient Than Guard Roundout Brigades," draft report, Washington, D.C., 1992.

¹⁷Interview with General Richard Cavazos, U.S. Army (Ret), senior observer-controller with the BCTP. BCTP officials pointed out that the program is intended to hone command and control skills and make them into "instinctive" habits that can be relied on in the heat of battle, when combat commanders get little or no sleep for extended periods of time.

The Army has already inaugurated programs to improve training the battalion and brigade commanders and staffs. For example, today's reserve command groups are attending the Tactical Commanders Development Course (TCDC) under Bold Shift and are undertaking special Army National Guard training programs.¹⁸ Early indications are that annual TCDC-like training has the potential to improve the proficiency of individuals and units.¹⁹ Whether this potential will ultimately be realized, however, is an open question. Also, the large menu of additional training activities may reach a ceiling imposed by the limited amount of training time available to reserve officers. And even if new programs do provide opportunity to learn new skills, the limited time available and the focus on crew and platoon level training in peacetime may preclude their practice and internalization. These considerations have prompted us to consider the 128 day post-mobilization estimate as a best current estimate and to seek ways to reduce it.

Options for Reducing Combat Unit Preparation Time

There have been many proposals to improve reserve combat unit readiness. The most recent were enacted into law in October 1992 as part of Title XI.²⁰ Virtually all of these, however, have focused on incremental and procedural changes. Here we outline an additional set of changes, consistent with Congress' charge to "consider possible revisions in missions assigned, . . . training practices, and possible changes in the organizational structure of active and reserve components."²¹ These alternatives would substantially change the way the current system works.

We examined a number of options for reducing the post-mobilization preparation period, taking into account the need to (1) save substantial amounts of post-mobilization time and (2) decrease the risk of inadequate peacetime readiness among reserve troops and leadership. Our review suggested four primary types of structural or resource changes that might lead to major improvements:

¹⁸See, for example, Department of the Army, *RC Leader Development Action Plan*, Office of the Chief of Staff, Washington, D.C., 1992; and William M. Steele, "Army Leaders: How You Build Them, How You Grow Them," *Military Review*, August 1992, pp. 14-20.

¹⁹Conversations with trainers supervising the TCDC program, Fort Leavenworth, Kansas, July 1992.

²⁰Aside from the directed focus on combat unit training, these reforms include minimum percentages of prior active duty personnel, review of officer promotions by commanders of associated active units, increased requirements for NCO education, an initial entry and non-deployable personnel account, minimum medical and dental deployability standards, the development of a deployability rating system, and a number of programs to increase deployability of Army National Guard and active component units.

²¹Sec. 402, *op. cit.*, p. 64.

- Using computer simulations for training;
- Reforming the underlying conditions that constrain reserve peacetime readiness;
- Using two sets of equipment to prepare early deploying reserve combat units, thus permitting parallel training and shipping of equipment; and
- Rounding out at lower echelons (company or battalion) to cut training tasks and increase confidence in leadership skills.

Using Computer Simulations for Training. Advanced technology, especially computer simulation, is often advocated as a solution for training problems. As part of this study, the Institute for Defense Analyses (IDA) undertook an extensive examination of simulation approaches to enhance reserve readiness and reduce deployment times.²² They noted the possibilities for a distributed simulation system with computer nodes at local armories networked together to accomplish gunnery, maneuver, and command and control training, and they cited as an example the Army's "successful program of training commanders and battle staffs in their responsibilities at the Tactical Commander's Development Course (TCDC) at Fort Leavenworth."²³

The IDA assessment found the potential for "significant improvements in ARNG training readiness and . . . reductions in their post-mobilization (training) time," if a set of key assumptions could be satisfied.²⁴ However, the study also cautioned that:

- There is great uncertainty about the degree to which simulator use allows more training to be accomplished in a given time period. The estimates presented here indicate possibilities, but they do not conclusively show how much improvement is possible
- Greater use of simulation implies additional costs. Training aids and devices must be bought, and they must be kept avail-

²²John Tillson, Stan Horowitz, and Merle Roberson, *Alternative Approaches to Organizing, Training and Assessing Army and Marine Corps Units*, Institute for Defense Analyses, November 1992.

²³*Ibid.*, p. VIII-1.

²⁴Among the assumptions: Each reserve maneuver unit would provide sufficient simulators and adequate support, including extra training days, at their home armory to have 29 days of simulator training out of a total training program of 45 days each year; and the training performance in simulators of all kinds would allow three times as much actual training to be done per day as would otherwise be possible. IDA notes that, "This last assumption deserves further attention. The relative value of simulator training and non-simulator training is a critical factor in estimating how much additional simulator use could reduce the peacetime training deficit (of reserves versus like active units). There is . . . no precise information on the value of this factor." Tillson et al., *op.cit.*, p. VII-19.

able. . . . This only helps if facilities are open and if equipment is operable. (Army National) Guard heavy units have reported difficulties keeping (existing training equipment) operable.

IDA recommends continuing the current multi-year test, sponsored by the Defense Advanced Research Projects Agency (DARPA) and the Army National Guard, "to determine the potential for simulation to improve ARNG training readiness."²⁵ For now, it remains to be proven that simulation can raise proficiency and/or training efficiency enough to eliminate or shorten steps in the post-mobilization preparation process for brigades. In our judgment, therefore, it would be premature to count on simulation alone to make combat-ready reserve brigades available sooner and hence to affect our development and evaluation of alternative active/reserve force mixes.²⁶

Reforms in Resources and Procedures. The training times in Table 7.1 suggest that to achieve large reductions in post-mobilization time, the Army would need to substantially change the conditions under which reserve units operate. They would need to move from the conditions characterizing the "pessimistic" environment to the more favorable circumstances characterizing the "intermediate" or "optimistic" environments. As we will see shortly, instituting such changes could be combined with reorganization for company- or battalion-level roundout to produce some synergistic effects. Here we consider a range of "reforms" that could improve readiness, primarily by increasing experience and capability at the crew and platoon levels, where peacetime training is focused. This draws heavily from IDA's supporting study, and some of these initiatives are reflected in the Title XI reforms recently enacted.

We identify four areas where reserve units face impediments to effective training and where reforms might reduce post-mobilization training requirements: (1) individual/crew stability and manning; (2) efficient use of available training time; (3) individual schooling opportunities while preserving collective training; and (4) maintenance of equipment.

Individual/crew stability and manning. Reserve units experience considerable turnover and turbulence, which impedes their ability to build on previous training and experience and move to higher levels of training and ready-

²⁵*Ibid.*, p. VII-26. We concur in the belief that this technology is promising and deserves further evaluation.

²⁶This was also the judgment of General Paul Gorman USA (Ret), during an interview, July 14, 1992.

ness.²⁷ Reforms that kept qualified personnel in duty positions longer would help maintain crew qualification during the year. Such reforms would include using bonuses and other management tools to keep crews together, limiting cross-MOS and cross-unit movements, and increasing retention, thus minimizing the need to recruit and train new personnel. Allowance of "overgrade" spaces would permit skilled crew members to gain promotion and still remain in the unit. Authorizing overstrength levels, plus a holding account for students and transients, should permit 100 percent staffing units with people who are qualified in their MOS.

Efficient use of available training time. Weekend drills account for 24 of the 39 training days available to reservists each year. Many have suggested that more effective use of weekend drills is a key to increasing peacetime readiness and reducing post-mobilization training time. Reforms to accomplish this would include provision of air travel (dedicated or commercial air) to permit reserve units to train on weekends at major training areas or with their active gaining division. Alternatively, reserve units could be restationed to place them closer to their active division, thus giving them more frequent access to maneuver areas and ranges. In addition, providing more full-time support personnel to plan and manage weekend training would make inactive duty training (IDT) more efficient; and it would free commanders to focus on wartime missions. Finally, trainees' scarce time would be used more efficiently if simulation were provided to train crews and platoons at their armory, without lengthy travel and set-up/tear-down procedures required by training in the field.

Individual Schooling opportunities while preserving collective training. Title XI addresses the need for initial entry training and a non-deployable personnel account. Here we go further. For many individuals who require professional education, the only time available is during Annual Training. This results in many soldiers not being available to attend Annual Training with their unit, creating changes and turbulence in crews, squads, and platoons and detracting from the effectiveness of the collective training events. Authorizing "extra" manpower in order to cover inevitable absences for formal schooling would ensure that more of the required, qualified personnel would be available for collective training events. Additional compensation for additional training days would permit NCOs and officers to attend courses required for their positions, without using Annual Training time. Reconfigured correspondence courses and other remote-learning techniques

²⁷Buddin and Grissmer, *op. cit.*, 1992.

would permit home study so that valuable collective training time is not diverted from Annual Training.

Maintenance of equipment. Title XI addresses maintenance and equipment problems. The DAIG report on the reserve brigades' post-mobilization training also cites several serious maintenance problems: "poor maintenance execution" at all levels, slow and incomplete transition to active Army logistics systems, "over dependence on full-time support," and the need for "more effective post-mobilization integration of roundout units into the active maintenance system."²⁸ Currently, because heavy equipment maintenance is so specialized and time consuming, reserve maneuver units do not maintain their own equipment. In most states, the equipment is stored and maintained at central Mobilization and Training Equipment Sites (MATESs), staffed by dual-status civilian technicians. This approach has not worked well for the combat brigades. Adding personnel at undermanned MATES, providing active oversight or even direct maintenance reserve of combat equipment by active gaining units may be needed to ensure equipment is readily available for training during peacetime.

Initiatives that move in these directions appear essential if reserve peacetime conditions are to change so as to achieve the intermediate or optimistic train-up scenarios we have laid out. We contemplate implementing them not by themselves, but in combination with moving to a lower-echelon roundout program as described below.

Using an Extra Set of Equipment. A simple approach to shortening train-up times is to carry out large blocks of activities in parallel. This option could avoid the necessity for moving equipment to a collective training site and eliminate the post-training time for recovering/maintaining equipment and preparing it for shipment. This would probably cut about three weeks from the estimated 128 days for preparing a roundout brigade. More important, however, it would allow training to proceed in parallel with equipment deployment, cutting a total of six or seven weeks from the total time between call-up and arrival in, say, the SWA theater. Thus there could be substantial benefit in having an extra set of equipment in the system.

To implement this option, the DoD would need to buy, store, and have immediately ready approximately one additional division set of first line heavy armored equipment (Bradley Fighting Vehicles, M1A1 Tanks, support vehi-

²⁸DAIG, *op. cit.*, pp. 3-5, 3-13, and 4-8.

cles, etc.) compatible with the gaining divisions' equipment that could be shipped to the theater with the roundout unit's parent division. The troops could then deploy immediately by air after they had completed their required post-mobilization training. Follow-on units would clean and repair the equipment left behind.

We estimate that the procurement costs of a new divisional set would be \$1.7 billion. We have not estimated the yearly cost to store or maintain that equipment. Data we have from the Army suggest that given the current inventory of heavy equipment and unit priorities there may even be enough tanks to support this option without purchasing an entirely new divisional set. We estimate that could save approximately \$300 million. In the future, if the Army's projected force structure is cut further, more first line equipment may become available for this purpose.

Rounding Out at a Lower Echelon. It has often been noted that during the Persian Gulf War the Marine Corps sent reserve combat units to the theater, and their ability to do so is often attributed to the fact that they round out their units at echelons lower than brigades (or in their case, regiments).²⁹ IDA has suggested several options to deploy smaller, lower-echelon units, to reduce the tasks that units perform, and to reorganize to provide simpler units.³⁰ Title XI reforms also assume the benefit of lower-echelon roundout when it asks the Secretary of the Army "to identify the command level at which (reserve) combat units would, upon deployment, be integrated with active component forces, consistent with . . . post-mobilization training days allocated to a unit before deployment."³¹ In the following we consider why and how rounding out at a lower echelon might reduce post-mobilization training times.

In order to better understand and analyze the possibilities of roundout Army units at lower levels, we developed specific battalion and company roundout designs³² and discussed these designs with numerous experts in the active Army and the Army National Guard. For comparison, we also present the

²⁹See the Congressional Budget Office, *Meeting New National Security Needs: Options for U.S. Military Forces in the 1990s*, Congressional Budget Office Paper, February 1990, pp. 14-20, and Tillson, *op. cit.*, pp. VII-3/4. The analysis of Marine Corps unit post-mobilization train-up times conducted by the Center for Naval Analyses is discussed later in this chapter.

³⁰Tillson, *op. cit.*, pp. VI-4/6.

³¹Title XI, *op. cit.*, pp. 235-236. Aspin notes that, "A battalion destined for deployment and integration into a mechanized infantry division, might have a unit designator of 60 (post-mobilization training) days, while a brigade's might be 90 (post-mobilization training) days." Aspin, May 1992, *op. cit.*, p. 8.

³²We did not develop roundout designs for platoons because that is the focus of Bold Shift training.

brigade option. The designs are presented in detail in Appendix C and summarized below:

- The current **brigade roundout option** replaces one of the three active maneuver brigades in an active division with a reserve maneuver brigade having three reserve mixed maneuver battalions assigned. In addition, it would replace one artillery battalion, one engineer battalion, one forward support battalion and one signal company with like reserve units in the appropriate parts of the division. Current designs include a reserve ground cavalry troop as part of the roundout brigade, but this roundout design will be discontinued in FY 1995. This results in 33 company sized reserve units and a total of about 4,000 reservists in each roundout division, concentrated in maneuver, line, headquarters, and support companies and amounting to about one-third of the division's ground combat power.
- The **battalion roundout option** would replace one of the three active maneuver battalions with a reserve maneuver battalion in each brigade. In addition, it would replace one artillery battalion and one engineer battalion with like reserve units in each brigade. Each rounded-out brigade would have an all active support structure, and when rounded-out it would be the same size as an all active brigade. This would result in 26 company sized reserve units and a total of 3,400 reservists in each roundout division, spread between maneuver, line, headquarters and support companies and still amounting to one-third of the division's ground combat power.
- The **company roundout option** would replace two of the four active maneuver companies with two reserve maneuver companies in each battalion. In addition, it would replace one artillery battery and one engineer company with like reserve units in each battalion. Each rounded-out battalion would have an all active support structure, and when rounded-out it would be the same size as an all active battalion. This would result in 24 company sized reserve units and a total of 2,300 reservists in each roundout division, concentrated in maneuver and line companies but amounting to almost one-half of the division's ground combat power.

Assessment of Roundout Options

Definitive evaluation of the organizational effectiveness for battalion and company roundout was not possible during the time allowed for this study. However, based upon discussions with active and retired leaders in the ac-

tive Army and the Army National Guard, we identified 10 evaluative factors that are shown in Table 7.2.

Table 7.2
ASSESSMENT OF ROUNDOUT OPTIONS

Assessment Factors	Roundout Echelon		
	Brigade	Battalion	Company
Command authority and accountability	3 command echelons between crew/platoon training and active command	2 command echelons between crew/platoon training and active command	1 command echelon between crew/platoon training and active command
Complexity of training tasks	Very complex: requires extensive post-mobilization combined arms training	Less complex, but requires significant post-mobilization combined arms training	Least complex: most consistent with crew/platoon peacetime training
Equipment maintenance	Maintained by civilian reserve technicians	Maintained by civilian reserve technicians	Maintained by active duty gaining battalion
Availability of post-mobilization training areas	Only 3 to 5 areas with sufficient size to support brigade operations	Sufficient areas generally available	Numerous areas available
Peacetime active unit training	Full functional training for all active units, including cross-battalion combined arms	Full functional training for 2 battalions out of 3; brigade training more difficult	Full functional training for 2 companies out of 4 or 1 out of 3 battalion training more difficult
Mobilization flexibility	Very flexible: can easily deploy active brigades without roundout brigades	Most flexible: maintains battalion unity; can easily deploy more active battalions without roundout units	Least flexible: deployment must await company training or companies must extensively reorganize to deploy active portion
Estimated post-mobilization training time	128 days or more	70–90 days	60 days
Personnel/career development	Command opportunity through brigade (normally O-6)	Command opportunity through battalion (normally O-5)	Command opportunity through company (normally O-3)
Resources	Current budget	Additional steady state cost of \$24 million per roundout division per year	Additional steady state cost of \$68 million per roundout division per year
Acceptance	High acceptance: maintains status quo and provides largest number of senior reserve billets	Acceptance in doubt: both active and reserve components express reservations	Significant resistance: likely to be resisted by both active and reserve components

Several of these seem to favor company-level roundout, several seem to favor battalion-level roundout, and several favor brigade. A final choice must depend upon which criteria dominate. A discussion of each of these criteria follows.

Command Authority and Accountability. Army training doctrine in FM 25-100 places responsibility for training on commanders two echelons above the level being trained.³³ Thus, a division commander should be responsible for battalion training, and a battalion commander for platoon training. Such formal command relationships facilitate direction of training, priority setting, and resourcing actions that are now conducted by multiple active and reserve chains of command and oversight. Furthermore, the Army doctrine reflects the view that a commander who depends intimately on a subordinate unit's capabilities and has a direct "stake" in its performance will be the most motivated to oversee and develop the soldiers and NCOs in that unit.³⁴

Under the current brigade roundout/roundup concept and under the Title XI and Bold Shift initiatives, training is focused on crew and platoon training. Using the Army standard of two echelons between commander and trainee, the senior officer responsible for that training should be the battalion commander. In contrast, under current conditions the active Army commander responsible for that training is *four* echelons above (the gaining division commander, a major general). An alternative arrangement, consistent with what appears to be the congressional intent of making active commanders more responsible for training the reserves,³⁵ would be to create a more direct line of command responsibility in which the reserve company would report to an active battalion or brigade commander.

The importance of this issue of who is responsible for reserve training was captured by Senator Sam Nunn when he said many years ago, "I personally felt that one of the big impediments in preventing the total force policy from being a reality rather than a rhetoric has been the subjective reluctance of many people on active duty to believe that the Reserve Forces are a credible force."³⁶ The same theme was repeated when we interviewed active duty military commanders. Although these views are subjective, what also came

³³Department of the Army, *Training the Force*, Field Manual FM 25-100, 1988.

³⁴Currently, in a move similar to the Marine Corps Instructor and Inspector (I&I) program, FORSCOM is assigning a large number of active duty trainers to support the training of reserve units. The trainers will be assigned from brigade to battalion. At this point, it is not known if that will have the same impact as we expect for rounding out at lower echelons.

³⁵See Title XI, Section 1131 and Aspin, May 1992, *op. cit.*, p. 8.

³⁶Hearing before the Subcommittee on Manpower and Personnel of the Committee on Armed Services of the United States Senate, July 30, 1975.

through was a sense, backed up by specific examples, that if they could supervise small units on a continuing basis they could improve their pre-mobilization training, be in a better position to tailor their post-mobilization training, and have more confidence in their ability to perform as comrades in arms.

Just changing the chain of command, however, is not likely to have the desired effects unless it is matched with other changes to give active commanders the resources necessary to accomplish the readiness goal. Thus, under a lower-echelon roundout program we would urge that all of the resource changes and "reforms" outlined above be attempted as well. For example, units would need increased training time to allow correction of deficiencies as they are noted, and extra pay to encourage personnel stability and to compensate reservists for additional training time. In addition, if reserve units could be restationed they would benefit from a closer physical proximity to their gaining command; or, reserve unit members could be flown from local unit sites to the gaining division station for selected weekend drills. These types of changes would permit more integrated training between active and reserve units during the year.

Complexity of Training Tasks. In its review of possible ways to reduce deployment times, IDA notes that a "plan to deploy smaller, lower-echelon units . . . would eliminate some of the burden of training complex high-level synchronization tasks."³⁷ The more complex a unit, as discussed in Chapter 5 under the heading, *Level of Integration*, the more difficult it is to master skills in peacetime or to rapidly become proficient upon mobilization. The increased complexity of commanding and controlling Army heavy combat maneuver units is suggested in Table 7.3. Platoons and companies predominantly perform a single tactical function, are equipped with a single major weapon system, have fixed organizational structures, and have a very limited ability to operate independently because they require continuous external support from higher echelons. Commanders of platoons and companies are in direct control of troops and combat systems. Platoons and companies fight as integral units or as company teams when platoons are cross attached, focused on executing their single function of tactical maneuver. Platoons operate exclusively in close operations with small numbers of personnel and combat vehicles. Companies maneuver subordinate platoons in direct response to exigencies of the close battle in real time.

³⁷Tillson, *op. cit.*, p. VI-4.

Battalions execute single tactical functions with a mix of weapon systems with fixed organizational structures. Battalions normally fight in task-organized mixes of infantry and armor companies. The battalion commander exercises relatively indirect control of his troops. Battalions operate predominantly in close operations, maneuvering subordinate companies. The battal-

Table 7.3
CHARACTERISTICS OF ARMY HEAVY MANEUVER UNITS BY ECHELON

	Echelon		
	Brigade	Battalion	Company
Key Features	Combined Arms: Maneuver, Fire Support, Close Air Spt, Army Aviation and CSS Mix of Weapon Systems Variable Organization Fights Task Organized Indirect Troop Control Improved Sustainment Executes all Combat Service Support functions	Combined Arms: Primarily Maneuver with Integrated Direct and Indirect Fires Mix of Weapon Systems Fixed Organization Fights Task Organized Less Direct Troop Control Limited Sustainment Organic maintenance and transportation	Single Tactical Function: Direct Fire and Maneuver Single Primary Weapon System Fixed Organization Fights as Integral Unit Direct Troop Control (Requires External) Support for Maintenance and Sustainment
Control			
Area of Responsibility	<300 km sq	<50 km sq	<10 km sq
Planning Horizon	24–48 hours	12–24 hours	12–24 hours
Personnel	3,000–5,000 people	500–850 people	65–200 people
Primary Skills	75+	30+	3–4
Major Combat Vehicles	200–300	50–70	10–12
Combat			
	Simultaneous Integrated Close and Rear Operations Execute and Plan Current and Future Operations—Think in Time and Space Prioritize, Assign and allocate missions and assets Integrate and Synchronize all 7 Battlefield Operating Systems and significant complex Coordination	Integrated Close Operations Execute Current Operations Fight the Maneuver Battle Integrate various Battlefield Operating Systems and perform direct Coordination	Close Operations Execute Current Operations Shoot and Maneuver No Integration and only simple Coordination

ion commander integrates the combat actions in the various battlefield operating systems, such as indirect fire support, at his disposal to achieve the greatest synergistic effect on the real-time battle.

Brigades execute more complex tactical functions, combining a variety of battalions and companies with a mix of weapon systems. The brigade is a flexible, variable organization with only a fixed organizational structure for its headquarters and support base. Brigade commanders and their staffs think in "time and space" to direct and position the entire brigade for simultaneous and continuous close and rear operations for extended periods of time. The brigade commander must establish priorities for actions, assign missions and allocate assets accordingly, over time. The brigade commander integrates the efforts and synchronizes the operations of all seven battlefield operating systems engaged in his area of operations. The brigade commander must also participate with the higher echelon commander and staff in developing options and planning for future operations. The brigade must coordinate many functions laterally with bordering units, in diverse operating systems for supporting forces and with higher and lower echelons. The brigade commander exercises indirect control of assigned troops.

The extent of the increase in complexity is suggested in Figure 7.3, which shows the "area of responsibility" of the three echelons discussed above. As the relative areas suggest, the demands placed on combat leaders as they move up in command are not just additive, but increase by several "orders of magnitude" at each higher echelon.

Equipment Maintenance. As we noted above, equipment maintenance has presented problems for reserve units in peacetime, and it impeded post-mobilization training during ODS/S. Reserve maneuver units do not currently maintain their own equipment, and thus they lack certain skills. Some reservists also face conflicting demands on their time during mobilization; for example, civilian technicians who work at MATES may be members of other reserve units, to which they must report upon mobilization.³⁸ Under the company roundout option, equipment would be moved to active bases and maintenance would be the responsibility of the active duty gaining commander. This would make the officer responsible for reserve training also responsible for the maintenance of the equipment that the reserves use. We anticipate that the equipment would be better maintained under such an

³⁸Brauner and Gotz, *op. cit.*, pp. 42–43.

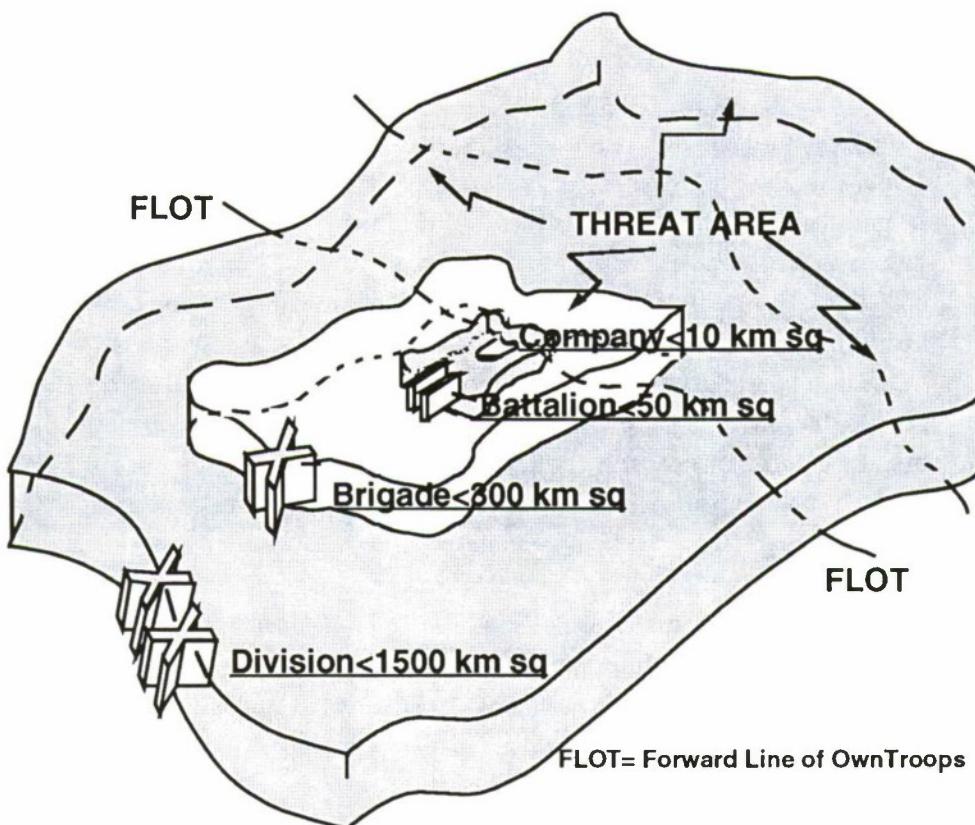


Figure 7.3—Area of Responsibility by Echelon

arrangement. Additional active personnel should be added to the battalion to handle the operator level workload generated by the reserve company when the company trains during the year. Intermediate level maintenance would be contained in the all active battalion's headquarters company.

Under the battalion roundout concept, heavy equipment would continue to be stored and maintained at special reserve sites. To make the maintenance system more responsive, either additional full-time manning to maintain reserve equipment would be needed at those sites or maintenance would have to be reorganized to become a responsibility of the active force, also with more costly manning requirements.

Availability of Post-Mobilization Training Areas. Under some scenarios, certain roundout brigades would face limited access to training areas after mobilization (typically when they mobilize or train at an active duty post where the active division has not yet deployed). Smaller units require less range space and smaller maneuver areas, and the Army would therefore have more flexibility in assigning such units to suitable post-mobilization training sites.

Post-Mobilization Training Time. How much time might be saved by shifting to battalion or company roundout? Company roundout clearly would require reserve commanders to master fewer and simpler tasks, it should improve the condition of equipment by placing it under direct control of active battalion commanders, and it would provide a direct command relationship between the active duty battalion commander and his reserve roundout companies. Additional reforms on a select basis may be needed to reinforce this option for the relatively few roundout units. For instance, the Army might restation units or supply transportation to permit training at active bases with gaining units year-round; pay reservists for additional training days; provide special access to training ranges and simulators; authorize overstrength and overgrade conditions and provide an overhead personnel account to cover trainees; and implement bonuses or other compensation to encourage stability in crews and MOS.

We believe such changes, together with those of Bold Shift and Title XI, could improve the status of roundout companies in peacetime so that the relevant post-mobilization training steps (recall Table 7.1) could be completed in the "optimistic" times estimated by the Arroyo Center.³⁹ Moreover, this option would eliminate a separate move from a mobilization station to a collective training site and, probably, the need for battalion and brigade task force operations in the preparation sequence. All told, we estimate that, under company roundout, it would take division roundout units about 60 days to be ready for deployment.

Battalion roundout should require a post-mobilization time between those for company roundout and brigade roundout. Equipment would still be maintained at MATES, a move to the collective training site would still be necessary, and a wider range of integration and synchronization skills would need to be mastered and demonstrated. We estimate that, under battalion roundout, it would take division roundout units about 70–90 days to ready themselves for deployment.

While we thus conclude that company-level roundout would require the least time to prepare the reserve element of a roundout division to fight, its selection would come at a substantial price in terms of resources, flexibility, and ease of implementation. The following discusses some of these disadvantages.

³⁹For example, tank and Bradley Fighting Vehicle crews would enter gunnery training at the level of Tables VII–VIII upon mobilization, bypassing Tables IV–VI and perhaps even VII.

Peacetime Active Unit Training. Under company-level roundout, peacetime training would be more difficult for the gaining units in the active component because maneuver battalions would not have their full complement of companies continuously available for training. In addition, active companies would have to do "double duty" in training reservists who drill on the weekend, especially if additional drills were authorized to maintain high levels of readiness. Both of these problems are troublesome for the company-level roundout option. While active brigades that have roundout companies or battalions have a full complement of support units, the company-level option places half of the maneuver companies of each battalion in the reserve. Thus there would be only one active maneuver unit to help train each reserve unit, as compared with two active brigades for each reserve brigade in today's organization.

Moreover, in order to have battalion-level training exercises in peacetime and "train the way they would fight," two separate battalions would have to pool their active companies. While this is similar to the cross-battalion combined arms training they already do today, it reduces individual battalion training flexibility. The problem could become particularly acute during preparation and exercises at the National Training Center. Careful scheduling of training would have to make sure that active personnel were granted appropriate time off during the week to compensate for training with reservists on the weekend. These problems would be less difficult to accommodate under battalion-level roundout, since reserve battalions would be required to be more self-sufficient in peacetime.

Mobilization Flexibility. A recent report by the Congressional Research Service noted that:

Absent the political decision to mobilize reserves, a brigade minus one battalion or a battalion minus one company is (relatively) a much less effective unit than a division minus one brigade. An active division with one roundout brigade can deploy without the brigade and still be reasonably tactically effective. . . . Rounding out at a smaller level would therefore place even more pressure than currently exists on the national political leadership to mobilize reserves, and would make the total Army even more dependent than it already is on that decision.⁴⁰

⁴⁰Goldich, 1991, pp. 45-46.

Discussions with senior Army leaders confirm this concern; in order to maintain a doctrinally correct structure they would have to wait until the roundout companies had completed training or reorganize into new combat formations. In either case, company roundouts would be inherently less flexible than battalion roundouts.

Personnel/Career Development. The National Guard has also raised the following issues:

The idea of relocating roundout companies to areas that support active duty installations is suspect. There are demographic problems. . . . A fundamental question that needs to be asked is what happens to the professional growth of officers and NCOs in the roundout company? What higher level organization does he go to after command? What are the impacts on the community of the units being relocated?⁴¹

These are valid concerns. Their impact, however, would be limited if the lower-echelon roundout program applied only to the roundout brigades. In both the Base Force and the National Guard Association force structure proposals, only three such brigades exist; a lower-echelon roundout plan would have potential impact on only about 7,000 guardsmen, leaving the remaining independent National Guard force including brigades and divisions unaffected.

Resources. As we have designed it, the current three roundout divisions, rounded-out at the company level, would cost approximately \$204 million more per year (steady state) than the current brigade roundout arrangement for three roundout divisions.⁴² Our design for a battalion-level roundout would cost about \$75 million more per year (steady state) than the current arrangement for three roundout divisions. In both cases there would be further costs associated with locating reserve units close to their gaining divisions (or transporting them to train with their gaining divisions during the year), to support the additional training time, and to provide compensation to implement the reform packages discussed above.

Acceptance. Senior Army leaders have expressed serious reservations concerning lower-level roundout, citing their concerns that company-level roundout particularly would disrupt peacetime training and compromise

⁴¹Letter from Major General Raymond F. Rees, Vice Chief, National Guard Bureau, to Bernard Rostker, November 20, 1992.

⁴²These estimates include personnel and normal operating costs. They exclude any transition costs to reach the new structure.

readiness, as well as lock up the combat power of three divisions in a round-out structure that would take time and a political decision to mobilize. The National Guard leaders with whom we talked reject company-level roundout (and it seems also battalion roundout) completely because, as they see it,

The (brigade) roundout concept is not broken. The supporting process was not well managed. RAND needs to focus energies and study these areas.⁴³

This comment, we believe, squarely joins the issue. It holds that brigade-level roundout, with sufficient attention and resources, can be made to work within acceptable post-mobilization time lines. Further testing and evaluation would be needed to determine the degree to which such programs can meet their goals. The alternative view holds that more fundamental changes such as company-level or battalion-level roundout are required to ensure that reserve combat maneuver forces will be available and ready when required by a contingency to deploy with their parent active divisions.

Preparing Air Force Reserve Component Units

As seen during ODS/S units in the Air Reserve Component (the ARC, comprising the Air Force Reserve and the Air National Guard [ANG]) were more ready and deployed faster than Army units. This is largely because:

- ARC units undergo rigorous evaluations and inspections (e.g., including Operational Readiness Inspections, ORIs) in peacetime that test both their ability to deploy quickly and their wartime operational skills.
- They deploy directly from home stations, with no immediate review of their capabilities and resources by outsiders.

Key differences in Air Reserve Component units, especially compared to the Army roundout brigades, permit this more rapid response:

- ARC units contain many fewer people.
- Most unit members have prior experience on active duty. For example, more than 98 percent of the reserve components' pilots and over 70 percent of their maintenance specialists have prior service experience.
- The combatants themselves, the air crews, spend an average of 80–100 days in training per year.

⁴³Letter from Major General Rees, *op. cit.*

- Units average 25 percent full-time personnel.
- They operate in wartime from large, fixed bases.

In the following we consider the deployment times for ARC non-flying units, airlift and tanker units, and combat flying units.

Non-Flying Units

Like all Air Force units with elements that deploy, non-flying ARC units have Directed Operational Capabilities (DOCs) tasking statements that describe their assigned missions and prescribe the equipment and personnel they are authorized.⁴⁴ For the most part, reserve non-flying units' DOCs statements are identical to those of their active duty counterparts. They are expected to provide the same capabilities and numbers of personnel as active units.⁴⁵

Moreover, units in the active and reserve components face the same detailed standards for individual and collective training and performance—e.g., the standards required for earning higher skill levels within a technical specialty, for qualifying to fill a wartime position, or earning differential ratings in ORIs.⁴⁶ For example, both active and reserve civil engineers must complete at specified intervals the same training in 10 categories—e.g., including explosive ordnance reconnaissance, chemical warfare defense, and rapid runway repair. Similarly, both active and reserve security police specialists' qualifications must be re-certified periodically by a quality control examiner. Security police specialists must demonstrate specified levels of knowledge and proficiency concerning search and clear operations, hand and arm signals, and use of night vision and sound techniques, hand grenades, anti-tank weapons, and the like.⁴⁷ Different requirements pertain to different individual positions within deploying units. Performance standards are also

⁴⁴In regular SORTS reports, units compare their equipment holdings and available personnel to the numbers designated as required or authorized, often for smaller packages of people and equipment called UTCs (or unit type codes). A unit's DOC statement designates other documents that list the types and quantities of equipment and personnel required and authorized.

⁴⁵See, for example, Air Force Engineering and Services Center, *Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program*, AFR 93-3, 1990, p. 2-13.

⁴⁶For a consolidated discussion of the Air Force's relevant procedures, standards, and evaluation methods, see S. M. Holroyd and S. C. Moore, *Improving the Characterization of Training Status for Selected Types of Air Force Units*, R-4263-DAG, RAND, forthcoming.

⁴⁷We have observed that such requirements are not necessarily applied consistently across units or components, however. In some (perhaps isolated) cases, position certification may be earned by periodically passing only a written examination. If a person fails the exam, a trainer may go over the missed questions with him, and the test score is adjusted upward to the minimum passing level once the trainer is satisfied the person understands the right answers.

consistent between the active and reserve components for collective tasks. For example, a four-person crew of civil engineers, whether active or reserve, should be able to install a rapid-runway-repair airfield light set in two hours or less.

Frequency seems to be the primary difference between the components' application of standards in non-flying units. For example, active duty civil engineering and security police specialists must complete training and qualification checks for their wartime positions every year (although the interval varies from about 10 to 14 months), while their counterparts in the ARC must complete them only about every 15 months. The longer interval is dictated mostly by how long it takes reservists, working only part time, both to complete their wartime positions' periodic training and qualification requirements and the requirements for upgrading to higher skill levels within their technical specialties. Reserve units are also inspected less frequently. Active duty units undergo ORIs about every 12–18 months, and ARC units undergo them only every 3–4 years.

Our judgment is that Air Reserve Component units are largely able to deploy with operational capabilities similar to their active duty counterparts on very short notice, generally no more than a week.⁴⁸ Indeed, all such units report their status through SORTS with respect to an objective of no more than 72 hours.

Airlift and Tanker Units

The Air Force organizes much of its reserve airlift and tanker force as associate units. That is, the active Air Force owns the unit's aircraft and, for both air crew and maintenance personnel, about half are in an active squadron and half are in an Air Force Reserve associate squadron. (Air National Guard and some Air Force Reserve airlift and tanker units own their own aircraft and do not use the associate unit concept.) Contingencies require airlift and tanker units *immediately* to support both force deployment and theater operations. Nominally, a portion of the tanker force would be withheld from a major regional contingency in order to refuel strategic nuclear bomber

⁴⁸It is worth noting that, in contrast to active units, ARC non-flying units are generally required to deploy more nearly *in total*. Active duty units usually deploy a single UTC initially, comprising only part of the unit. For instance, civil engineering squadrons deploy largely in 50-, 100-, 150-, or 200-person "Prime BEEF teams," and security police squadrons deploy largely in 44-person "air base ground defense flights" or 13-person rifle teams. This gives active units the luxury of choosing from their members the initial group to deploy and taking a few more days, if necessary, to complete any training or other steps needed before a second group deploys.

forces, also on very short notice, if the need should arise. A much smaller portion of the force will be devoted to the strategic nuclear bombing mission in the future, of course.

Airlift and tanker units in the Air Reserve Component are kept ready for rapid employment. All of them are expected to respond in full within 72 hours; some are assigned response times as short as 36 hours. Many reserve members of these units served during ODS/S as volunteers well before they were officially mobilized. For airlift and tankers, almost all DOC statements and *most* peacetime training requirements and proficiencies are the same for the ARC as for the active duty Air Force. Nevertheless, there are some differences in the practice that active and reserve component air crews get in peacetime. For instance, the qualification criteria for KC-135 tanker command pilots require semiannually:

- 24 sorties for active-duty air crews, 14 for the ARC;
- 30 instrument landing approaches for the active, 16 for the ARC;
- 12 tanker air refueling for the active, 6 for the ARC; and
- 3 three-engine approaches/go-arounds for the active, 1 for the ARC.

Because their differences from active units are so limited and because of their successful performance in the past, we conclude that reserve component airlift and tanker units generally can respond and undertake their assigned operational responsibilities within at most three days, just as the Air Force plans to use them.

Combat Flying Units

Historically, the Air Force has not used reserves to support the strategic nuclear bombing mission, partly because of the extreme difficulty of keeping track of part-timers' whereabouts, medications, and the like, which are required for "nuclear surety." With the diminishing need for a large, nuclear-capable bomber force and the enhanced value that precision munitions lend bombers for conventional warfare, the Air Force plans to begin sharing responsibility for B-52 and B-1 operations with the reserve component. The reserve component has demonstrated its ability to provide rapid and effective mission capability for heavy aircraft in the airlift and tanker fleets, and we believe it will be able to duplicate that performance for the conventional bombing mission.

Finally, we turn to the fighter force, consisting largely of F-16s, F-15s, and A-10s. Each component has at least one flying unit equipped with each type of aircraft. Considering F-16s as an exemplar, we note many similarities and some important differences between active and reserve units. The most important similarity is that both active and reserve air crews are graded at least once every 18 months using the same standards and on the same topics—such as air-to-air tactics (e.g., including radar search, offensive and defensive maneuvering, and weapons employment), reconnaissance, and instrument procedures. Some notable differences include:

- Active units maintain capabilities in a broader range of mission areas. On average, the 21 active-duty F-16 squadrons maintain qualifications in 5 out of these 7 mission areas: nuclear, close air support, air interdiction, offensive counter-air, defensive counter-air, air superiority, and defense suppression. In contrast, the 7 Air Force Reserve squadrons have responsibility for 3.1 of these mission areas, on average, and the 18 Air National Guard F-16 squadrons for only 2.5.⁴⁹
- Reserve component pilots fly somewhat less frequently than active pilots, so many may need a few “tune-up” sorties to restore the edge to their proficiency.⁵⁰ Part-time ANG pilots (some 80 percent of a squadron’s pilots) average 7 sorties per month, compared to 12–14 for active-duty pilots.⁵¹ Part-time pilots also tend to pack their training sorties into short periods, often leaving gaps of two or three weeks with no flying.
- Reservists participate much less than active pilots in the most valuable “Red Flag” training exercises.⁵² Red Flag exercises grow more difficult and build on earlier lessons through a two-week progression. Relatively few reserve component flyers can attend for the full two weeks, however, and the Air Force has ruled recently that participants must commit for the full two-week program. Thus, full-time pilots receive the bulk of the reserve components’ F-16 squadrons’ training in these important exercises.

⁴⁹Source: F-16 squadron DOC statements, 1992. Note that strategic air defense is exclusively an ANG mission, and nuclear and chemical weapons are exclusively active component missions.

⁵⁰Pilots testify that both proficiency and confidence diminish after even a week or two without flying, but that they don’t take long to regain.

⁵¹Source: National Guard Bureau (NGB/XOOT), September 1992, and Air Combat Command Joint Studies Group, June 1992.

⁵²Red Flag (and similar Green Flag and Maple Flag) exercises at Nellis Air Force Base provide the Air Force’s most rigorous and realistic training, coordinating “packages” of 30–40 aircraft of different types to accomplish operational objectives against opposing air and ground forces that use potential adversaries’ tactics and simulated weaponry. Weapons firing and effects are simulated using laser instrumentation, the detailed movements of individual aircraft are tracked, aircraft are “lost,” etc. ARC units participate along with active units in these exercises.

- Greater overall flying experience gives many ARC pilots greater basic flying skills than many of their less experienced active duty counterparts.⁵³

We note that reserve component fighter units would operate in contingencies along with active component units in composite missions, similar to the practice in Red Flag exercises; they would seldom be on their own. We believe they can be counted on to perform their (sometimes narrower) assigned range of missions at levels consistent with their active duty counterparts with only about two or three weeks of preparation time. This seems to be consistent with Air Force contingency planning, which, reportedly, calls for ARC fighter units to deploy only several weeks after deployment begins.

Preparing Navy Reserve Component Units⁵⁴

The Navy's experience with reserve support units and personnel during the Persian Gulf War roughly parallels that for the other Services. Reservists responded when called, prepared quickly, and participated effectively with their active duty counterparts. Much of the time the Naval Reserve spent preparing before deployment was during the two weeks before the presidential recall on 22 August 1990. Table 7.4 lists the number of days until deployment and/or employment (being "on station") for several units.

Because the Navy didn't call up large reserve combat units such as air wings or frigates during the Persian Gulf War, their unit preparation times must be estimated. CNA bases its estimates principally on the "workup schedules" for active units in peacetime.⁵⁵

An active duty air wing's workup cycle takes about 14 months. The stages after an initial stand-down period and corrosion inspection and before a trial, one-month deployment include

⁵³Reserve units generally compete successfully against active units in "Gunsmoke" and "William Tell" competitions, although full-time members reportedly represent the ARC disproportionately. Moreover, the competitive events tend to emphasize pilots' basic flying skills, not their ability to exploit increasingly sophisticated avionics capabilities or to integrate smoothly into wartime's group operations, abilities that are very difficult to develop in the limited time that part-time pilots spend training during peacetime.

⁵⁴This section is consolidated from J. D. Mayer et al., *Navy Active and Reserve Force Structure and Mix Study*, Center for Naval Analyses, November 1992, Chapter IV, "Training Time and Availability for Deployment."

⁵⁵Workup schedules specify stages of training, maintenance, and evaluation that prepare Navy units for cyclical deployments in peacetime. On average, active duty units deploy for about 6 months at a time and then spend 15–18 months ashore, recovering from one deployment and preparing for the next.

- Basic phase: training for air crews individually and as squadrons. Crews must complete a matrix of training activities—e.g., including low-level navigation and night flying.
- Ramp phase: continues unit-level training, begins work with the carrier (for instance, carrier landings), and includes strike and strike escort training at Fallon Naval Air Station, Nevada, frequently where squadrons first come together into a wing.
- Advanced battle group phase: the air wing works with all ships in a battle group. For example, an Aegis cruiser may control some of the carrier aircraft.

Table 7.4
**DAYS FROM RECALL TO DEPLOYMENT/EMPLOYMENT
FOR REPRESENTATIVE NAVY RESERVE UNITS DURING
THE GULF WAR**

Unit	Days Until Deployment	Days Until On Station
Four VR squadrons	3	4
Fleet hospital (20 reservists)	14	15
Augmentation for USS Mercy		11
Augmentation for USS Comfort		18
Cargo Handling Battalion 3	8	
Cargo Handling Battalion 13	6	
Naval Mobile Construction Battalion 24	11	
Maritime Inshore Undersea Warfare Unit 202	5	

SOURCE: J. D. Mayer et al., Table 5.

An air wing's normal schedule can be shortened considerably by accelerating the pace of training and omitting some activities. Figure 7.4 shows estimates of a shortened preparation schedule, lying between an active wing's normal, peacetime workup schedule and an extremely compressed schedule consistent with the Persian Gulf War experience. CNA estimates that the normal 15-month schedule could be shortened to about 7 months. Estimating that they maintain roughly the status that active wings achieve 9 or 10 months into the workup cycle, CNA judges that reserve air wings would need about 5 months to complete the shortened workup schedule.⁵⁶ A current Navy initiative is to devote reserve air wings less to their own basic phase training and more to providing adversary squadrons for training active duty Navy

⁵⁶The advanced battle group phase is hard to compress because ship training dictates its length more than air wing training does.

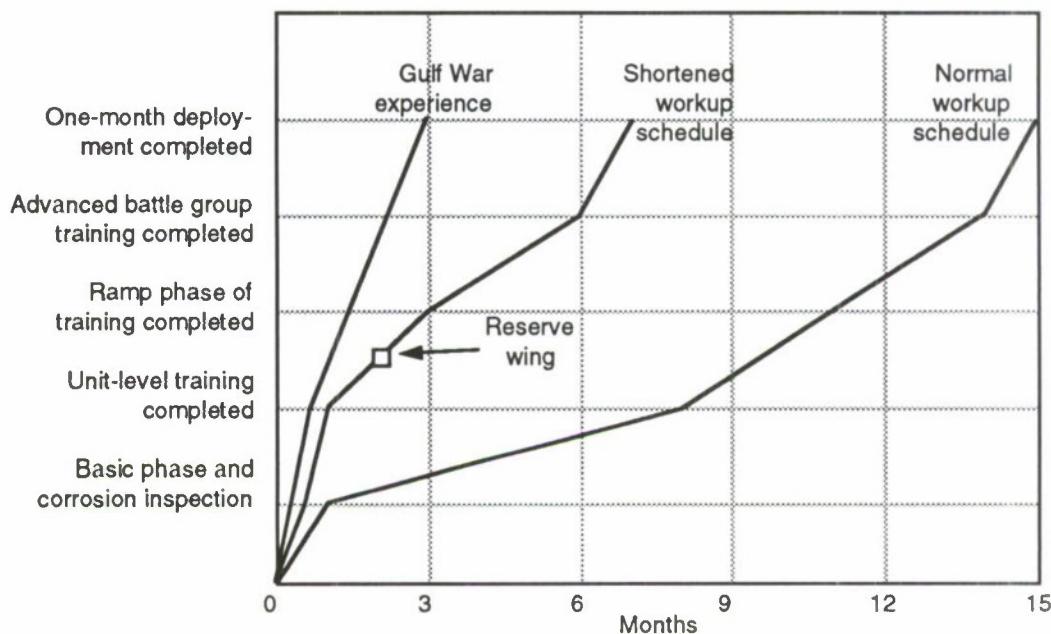


Figure 7.4—Time to Prepare Navy Air Wings for Major Regional Conflict

air wings. CNA estimates that this would lengthen reserve wings' preparation time by about two or three weeks.

Figure 7.5 shows similar workup stages and time estimates for combatant ships. The length and details of the workup schedule differ from one type of ship to another, of course. The training sequence during ship workup includes

- Individual ship exercises: the most basic training to make sure everyone knows where to go and what to do;
- Refresher training: a fleet training group leads and evaluates training on engineering, damage and casualty control, navigation, basic gunnery, and mission warfare areas (e.g., anti-submarine warfare);
- Type training: tailored to different types of ships and often requiring the services of submarines, aircraft, and target drones;
- Composite training unit exercise: a small group of ships working together, possibly with outside support such as adversary aircraft;
- Battle group training operations: the full battle group training together;
- Fleet exercise: a “final exam” (graded by outsiders) where the battle group and associated forces, such as P-3 squadrons, work through a national scenario.

CNA estimates that peacetime's full workup schedule of 12–13 months could be shortened 2–3 months by reducing upkeep and the like and, for some surface combatants, by suspending counter-narcotics operations.⁵⁷ The line to the far left in Figure 7.5 represents the potential for active duty ships that are ready to enter battle group training operations when a conflict breaks out. With intensive effort, the essentials of battle group training and the fleet exercise could be accomplished in about a month.⁵⁸ Naval Reserve Fleet frigates, manned 72 percent by full-time personnel, go through workup cycles too; some go all the way through the fleet exercise. A reserve frigate could follow the accelerated, one-month schedule if it had just completed composite training unit exercises, but it could not remain deployed unless its reserve personnel were recalled. A reserve frigate less far along in its

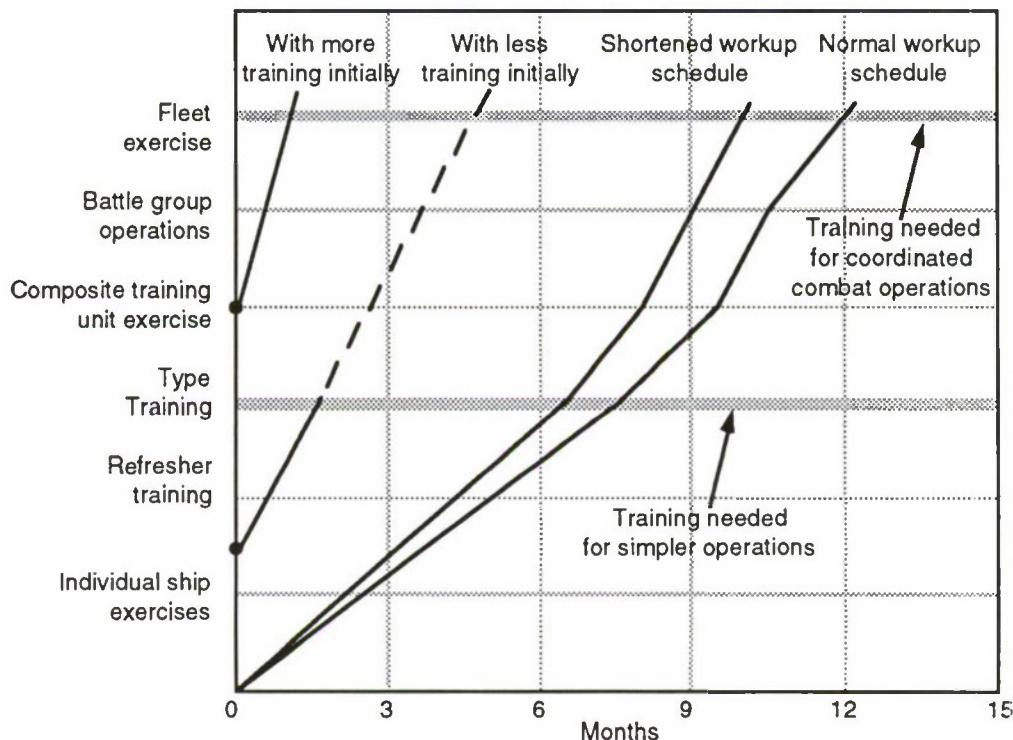


Figure 7.5—Time to Prepare Navy Ships for Major Regional Conflict

⁵⁷The Navy doesn't use the accelerated schedule in peacetime, partly because it would require people and ships to spend larger shares of time at sea than Navy policies (PERSTEMPO and OPTEMPO policies) permit.

⁵⁸During the Persian Gulf War, the Kennedy Battle Group worked up near the U.S. coast for about two weeks, trained en route, and arrived on station in the Red Sea 32 days after Iraq invaded Kuwait.

workup cycle would probably take four to five months to complete a full, accelerated workup, as the partially dashed line in Figure 7.5 indicates. Such a ship would more likely be assigned a simpler mission in a regional conflict, however, and would not need to complete the full cycle. The solid portion of the dashed line suggests that a frigate might continue its workup cycle for only about a month of type training and refresher training, and then deploy for a mission such as maritime interdiction.

Preparing Marine Corps Reserve Component Units⁵⁹

CNA developed its estimates for a range of Selected Marine Corps Reserve (SMCR) unit types using a variety of sources. The results are summarized in Table 7.5.

Table 7.5
ESTIMATES OF TRAINING DAYS NEEDED BY MARINE CORPS RESERVE UNITS UPON MOBILIZATION

Source of Estimates							
Active Unit Workup Schedules	Desert Shield/ Storm	Survey of Unit Commanders	Annual Training Differences	Expert Judgment	Training Days Reported in SORTS	CNA's Best Estimate	
<i>Ground combat companies</i>							
30	33	24	-	30	-	30	
<i>Ground combat battalions</i>							
60	48–86	69	62–107	60–90	<42	60–70	
<i>Ground combat regiments</i>							
-	-	26	-	90–120	-	90–120	
<i>Combat service support</i>							
-	33	30	-	-	-	30	
<i>Aviation</i>							
-	-	-	24–27	-	<42	30	
<i>Surveillance, reconnaissance, and intelligence</i>							
-	33	35	-	-	<42	30	
<i>Marine expeditionary force</i>							
-	-	-	-	-	-	120–180	

SOURCE: W. H. Sims, 1992

⁵⁹Most of the following is drawn from W. H. Sims, *USMC Active and Reserve Force Structure and Mix Study, Volume III: Development of Alternative Structures and Estimates of Training Times*, CNA Research Memorandum 92-185, Center for Naval Analyses, November 1992.

Source of Estimates

Active Unit Workup Schedules. Like their counterparts in the Navy, active duty Marine Corps units conduct workups to prepare for cyclical deployments. CNA found that field training experience in active duty units just beginning their workup cycles matches fairly closely the experience in SMCR units. This suggests that, if they received the same amount of training upon mobilization that active units accomplish during their pre-deployment workups, reserve units should achieve roughly the same levels of capability as their active duty counterparts. Active duty infantry battalions average about 60 days of field training in the six months before deployment; about 30 of those days concentrate on company-level training.

Operation Desert Shield/Storm Experience. The ODS/S battalion experience of 48–86 days (Table 7.5) is based on three reserve battalions: one that took an alert, first-in-line combat position in Okinawa and two that were assigned operational missions in Southwest Asia.⁶⁰ The range combines times spent in the United States (at the SIA) and overseas. Other reserve combat battalions deployed and were held in reserve during the Gulf War; they provided rear area security and collected enemy prisoners of war.⁶¹ Both actives and reserves say the reserves' training at SIAs was inefficient and limited, so it is difficult to draw strong conclusions from the Persian Gulf War experience.⁶²

Survey of Unit Commanders. A special survey of reserve unit commanders was conducted in March 1992 by the Commanding General, Marine Reserve Forces.⁶³ CNA believes the respondents' average estimate of 26 days for preparing a regiment (approximately the equivalent of an Army brigade) is unrealistically low.

⁶⁰One of the two received its operational mission on the last day of the war and did not execute it because of the cease-fire. See Cancian, *op. cit.*, p. 11.

⁶¹Training of reserve battalions and regiments was widely judged as inadequate during ODS/S. Indicative comments by senior officers in an extensive Marine Corps review include, "Most reserve battalions never got control of their companies," "Company and below were great, battalions were marginal, regiments were ineffective," and "[Battalions] don't have . . . control over their [subordinate] units . . . because they don't get a chance to do it every day." (*Ibid.*, pp. 10–11.)

⁶²An active duty commander, after working with reserve units at the SIA, said, "The amount of training they were able to do [at the SIA] . . . really made no significant difference in their tactical abilities." Some reserve units indicated that they received only about 10 full days of training, on average, in the 30 days they spent at the SIA. Limited availability of equipment, facilities, and ammunition were among the reasons cited. (*Ibid.*, pp. 15–17.)

⁶³Commanders responded to the question, "How long will it take your unit to prepare for employment in a war zone?"

Annual Training Differences. Reserve units typically spend substantially less time in training per year than do active units. For ground combat units, the smallest difference, 62 days, is for amphibious assault vehicle units. The greatest difference, 107 days, is for tank units. The difference for infantry units is 101 days.

Expert Judgment. CNA's extensive discussions with active and reserve Marines (including a senior Desert Storm commander who previously commanded the Marine Corps Reserve Division) encountered different views about the training reserve units need upon mobilization.⁶⁴ Table 7.5 represents a consensus estimate, disregarding the outlying claims.

Training Days Reported in SORTS. The C-3 rating under SORTS reflects a unit commander's estimate that no more than 42 days would be needed to complete unit training. CNA places limited confidence in the SORTS estimates of training needs; this is consistent with the Army Inspector General's observation that such estimates were unreliable during ODS/S for Army reserve component combat units.

CNA's Best Estimate

CNA's best estimate for ground combat companies reflects a consensus of opinion and observations that reserve ground combat companies can be made ready in approximately one month. The range for their best estimate for ground combat battalions (60–70 days) is consistent with ODS/S experience. Their best estimate for regiments (90–120 days) is most nearly comparable with the range of estimates developed by the Arroyo Center (i.e., 79–128 days) for reserve component brigades. However, Marine Corps regiments are fixed infantry organizations with a narrower range of tasks than an Army heavy maneuver brigade, which employs organic combined arms units.

Summary

Table 7.6 summarizes the required post-mobilization training times for each Service and the major formations. All estimates rely heavily on the ODS/S experience. The Army estimates are for heavy roundout formations. The

⁶⁴At the extremes, some reservists thought they were ready to go with no training, and some actives thought the reserves needed to be totally retrained.

Table 7.6
COMPARISON OF POST-MOBILIZATION TRAINING TIMES

Service/Organization	Army (NDRI Estimates)	Air Force (NDRI Estimates)	Navy (CNA Estimates)	Marine Corps (CNA Estimates)
Ground Units				
Company	60 days	—	—	30 days
Battalion	70–90 days	—	—	60–70 days
Brigade/Regiment	128 days	—	—	90–120 days
Combat Service Support	15–35 days		7 days	30 days
Air Units				
Non-flying	—	≤ 7 days	—	—
Airlift and Tanker	—	≤ 3 days	—	—
Air Combat	—	14–21 days	60 days for carrier units	30 days
Naval Ships	—	—	2–5 months	—

estimates show that support units have the shortest post-mobilization times ranging from about two weeks to a month depending on size and the complexity of their missions. These units are generally relatively small; as small as a detachment and as large as a company. Air units can go relatively quickly, depending on their peacetime organization and the complexity of their missions. Associate units that normally mix active and reserve crews are probably the most ready air reserve units. Carrier based air units are estimated to take the longest time to become fully ready. In all cases, since air crews regularly maintain flying proficiency and generally have extensive prior military service, post-mobilization times could be shortened in an emergency. Ground combat units take the longest time to get ready, especially at higher levels of organization. Brigades and regiments in the Army and Marine Corps are expected to take more than four months.

8. Alternative Force Structures for the Army

In the preceding three chapters, we have described the defining characteristics of force structure designs, considered the demand for military forces created by the National Military Strategy, and tested this against the supply, that is, the probability that various organizations could be trained up and deployed to meet that demand. All of this was essential for designing and assessing a "wide range of alternatives relating to the structure and mix of (Army) Active and reserve forces."¹ The purpose of this chapter is to describe the alternatives we developed and evaluated. Subsequent chapters present Air Force, Navy, and Marine Corps alternatives.

As directed by Congress, these "options consider possible revisions in the missions assigned to some active and reserve units, possible changes in training practices, and possible changes in the organizational structures of active and reserve components."² The alternatives are designed to provide forces that can "carry out expected future military missions,"³ as discussed in Chapter 6. They incorporate options designed to facilitate the early commitment of reserve combat forces. The options also include "a range of manning levels and declining funding levels"⁴ and, as directed by Congress, "manning levels . . . provided for the Selected Reserves . . . for fiscal year, 1993, levels significantly higher than those levels, and levels significantly lower than those levels."⁵

Overview of Army Force Structure Options

We assessed the Base Force and six other force options against the general military requirements presented in the DoD Defense Planning Guidance. According to the DPG, active components (ACs) should "supply combat and support forces for the initial response to contingencies that arise on short no-

¹Section 402, *op. cit.*, p. 62.

²*Ibid.*, p. 64.

³*Ibid.*, p. 63.

⁴*Ibid.*

⁵*Ibid.*

tice.⁶ Reserve component (RC) forces should "contribute mobility assets in short notice crisis, support and sustain active combat forces and provide combat forces in especially large and protracted contingencies."⁷ It also states that "mobilization of some Reserve Component combat forces can provide the force expansion needed to enhance the U.S. capability to respond to another contingency."⁸

In designing and assessing alternatives, we wanted to know if and how reserve *combat* units could take part in a Major Regional Contingency (MRC),⁹ generally as part of a roundout division, and the size and mix of active and reserve combat forces that would be available for a second contingency. If reserve *combat* units could not be ready when lift was available to move them to the theater, we wanted to know what force structure, or organizational alternatives might be available to correct that situation. We also wanted to know what arrangements had been made for active units to provide the required post-mobilization training of reserve *combat* units.

Figure 8.1 shows the seven force structures we examined in detail—five at the existing budget level and two at a budget level approximately 10 percent below the current level. We examined the DoD Base Force and alternatives with more and less active and reserve forces: the National Guard Association of the United States (NGAUS) alternative and the Enhanced Active Army Force alternative, respectively. We found that, given the training time estimates discussed in Chapter 7, these forces could not deploy fully trained reserve combat forces in the *required* time, did not adequately provide for the training of later mobilized reserve forces, or required more active forces than the Congress has been willing to provide.

The Alternative "i" force incorporated a number of changes that, taken together, provided an *equal cost* alternative to the Base Force, but addressed the above concerns. The Alternative "j" force made further adjustments to meet the 1993 end-strength goals discussed above.

⁶DPG, *op. cit.*

⁷*Ibid.*

⁸*Ibid.*

⁹We note the large number of combat support and combat service support units and personnel that must be called early in any MRC. As discussed in Chapter 3, hundreds of thousands of reserve support personnel were called and served during the Persian Gulf conflict. The issue of the role of reserve *combat* units, while important, affects a small minority of reserve units and personnel that would be engaged in any MRC.

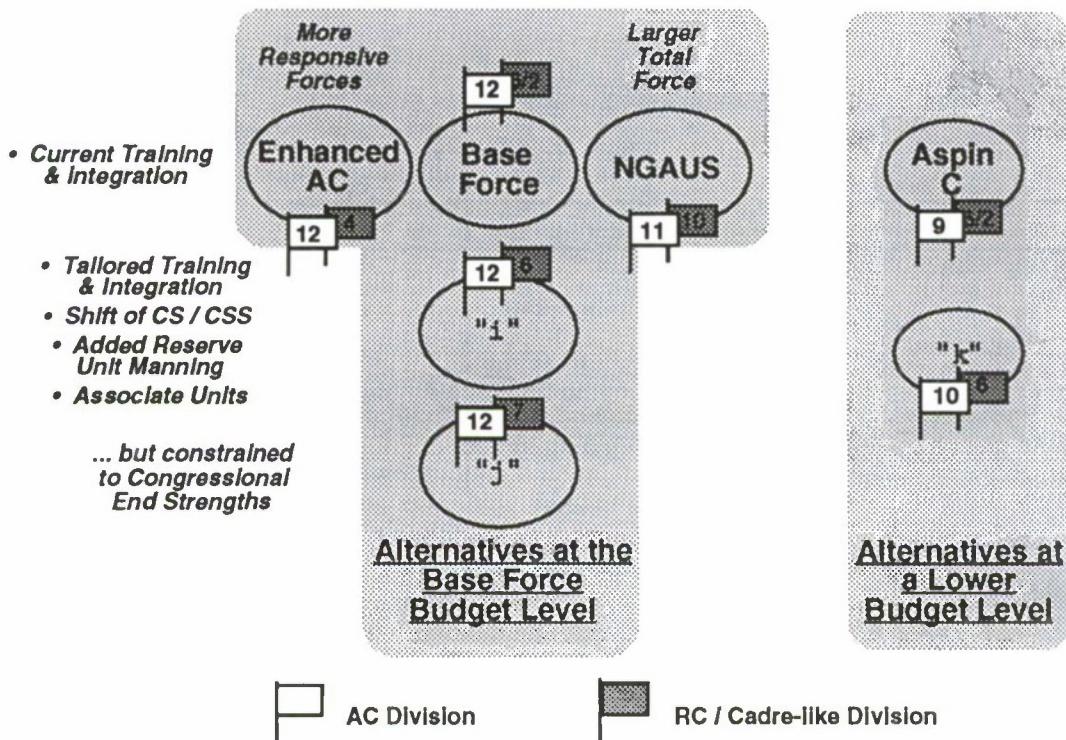


Figure 8.1—Army Force Structure Alternatives for Final Assessment

At a reduced budget level, we considered the recent proposal by Congressman Aspin, Chairman of the House Armed Services Committee, and an Alternative ("k") that incorporated the same features as Alternative "i."

The Army Base Force

In January 1991, following a lengthy process that is detailed in Chapter 4, the Department of Defense presented its much awaited "Base Force." This force was designed to meet a National Military Strategy that focused on "regional defense." Sometimes described as the 12/6/2 force, i.e., it contains 12 active divisions, 6 reserve divisions, and 2 reserve cadre divisions force. It is presented in detail in Figure 8.2.¹⁰

¹⁰Detailed unit-level "troop lists" were developed for all options using the Logistics Management Institute's (LMI's) Forces, Readiness and Manpower Information System (FORMIS) and computer files provided by the Army.

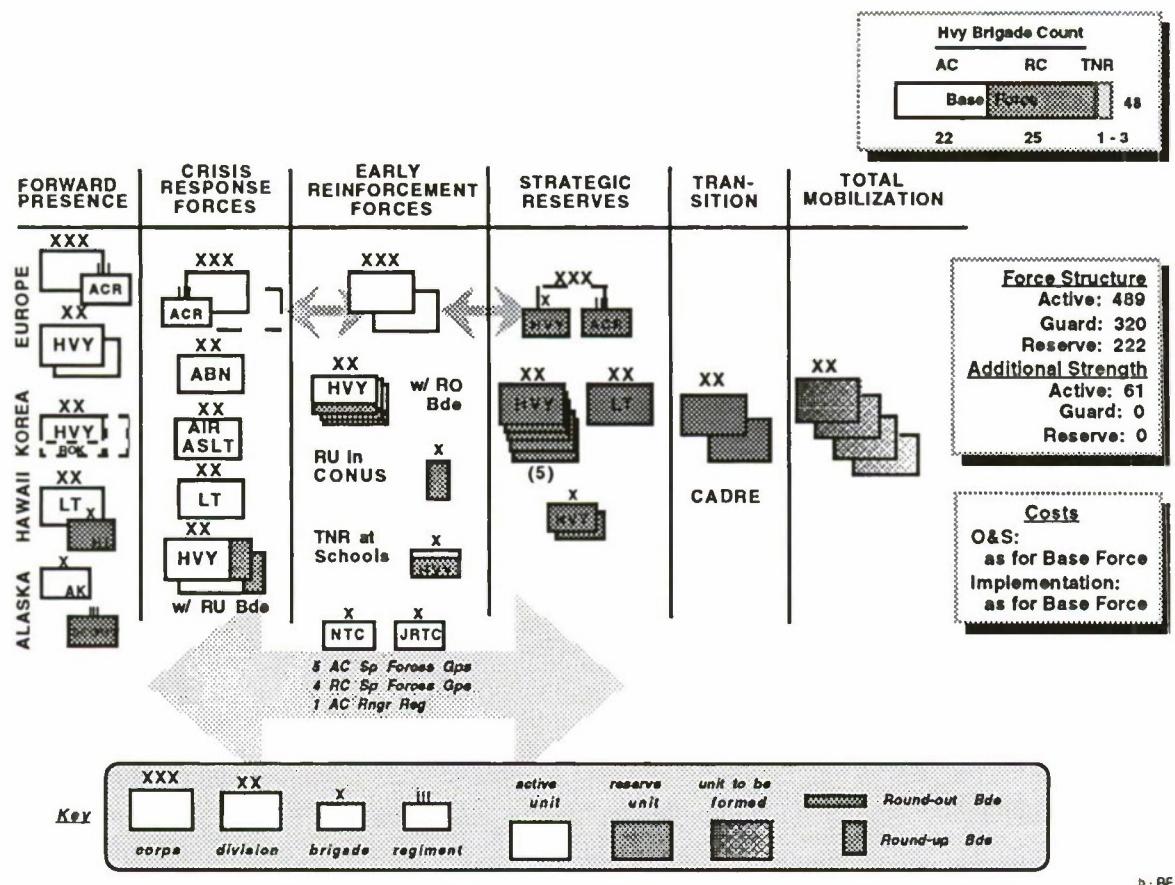


Figure 8.2—Army Base Force

Description

The following pertains to the Army Base Force depicted in Figure 8.2. We have arrayed the major combat units of the Army component of the Base Force along the lines of their responsiveness to contingency needs (crisis response, strategic reserves, etc.).¹¹ The forward presence forces provide a peacetime deterrence capability and are the most readily available forces to any given theater. In Europe, they consist of a corps with two divisions, an armored cavalry regiment, and the corps' associated CS and CSS. In Korea, these forces are two brigades of a heavy division, which rely on a brigade from the ROK for the third brigade of maneuver forces that normally

¹¹This categorization is not definitive: The light division in Hawaii can perform the crisis response mission, for example.

completes a division. This division is rounded-up with a reserve component brigade that is stationed in the CONUS but has a primary mission to deploy to the Korean theater to augment its parent division in war. An active component light division is stationed in Hawaii and is complemented by a reserve brigade of light infantry. In Alaska, the active component forward presence forces consist of a light brigade, and reserve forces consist of a highly specialized Arctic scout regiment.

The crisis response forces stand ready to respond to regional contingencies. They include a corps consisting of three specialized divisions (airborne, air assault, and light infantry), two heavy divisions with reserve roundup brigades (indicated by the shaded vertical rectangles), an armored cavalry regiment, and the corps' associated CS and CSS. As indicated by the dashed corps symbol and small double headed arrows, a second corps (headquarters, support and non-divisional combat assets) may also act as part of the crisis response forces, depending on circumstances.

The early reinforcement forces provide the capability to build a decisive force in theater and consist of a corps with its associated non-division combat and support units and three heavy divisions, each of which includes a roundout reserve brigade (shown by the horizontal shaded rectangle).

The Base Force contains four corps in all; we have depicted the fourth as part of the early reinforcement forces, though it may form part of the crisis response force as indicated above or provide the corps-level leadership and assets for the strategic reserve. We have also depicted the reserve roundup brigade, which augments the two U.S. brigades of the division in Korea, in the early reinforcement column to stress that it is not located overseas.

The strategic reserves provide strategic depth for the Base Force. They consist of six reserve divisions (five heavy and one light) as well as four brigade-sized reserve units (three independent heavy brigades and an armored cavalry regiment).

The ability to transition from full mobilization of existing units to total mobilization, which would create entirely new divisions, is provided by two specialized "cadre" divisions. In the Base Force, these are reserve units and would provide the leadership and training necessary to create new combat units. These newly formed units are depicted in a conceptual manner by the division symbols with variable shading shown in the total mobilization column; there may be more or fewer than the four shown.

In addition to these forces, the Base Force also includes five active component and four reserve component special forces groups, and one active duty ranger regiment. As indicated by the large double headed arrow in Figure 8.2, these forces may play a role over a wide range of responsiveness, depending on the situation.

Figure 8.2 also shows the specialized trainer units included in the Base Force. Some of these, such as the mixed active/reserve unit shown as a trainer unit at the Army's branch schools, might be assigned a wartime mission in the theater of conflict (in the past this has been as part of a theater's operational reserves). Others, such as the brigade located at the National Training Center (NTC), would typically continue their training mission during wartime.

The three panels to the right of Figure 8.2 show additional measures of the Base Force. Because many of the divisions in this and our other alternatives are mixed active/reserve units, we have found brigade counts to provide a clearer picture of the active/reserve mix of any given force. The panel at the upper right shows the number of active and reserve heavy brigades in this force structure, as well as the number of brigade-sized units specialized for heavy force training. The trainer units that would typically deploy to theater and those that would most likely continue their training mission during a conflict are reported separately.¹² The total number of deployable heavy brigades is annotated at the end of the bar.

The combat units depicted in Figure 8.2 account for only about 46 percent of a force that totals over one million. This is because CS and CSS units are not shown in the figure, nor is the supporting infrastructure base of the Army, known as the TDA.¹³ We have fully specified these critical parts of the Army for each of the alternatives presented in this chapter and show the resulting personnel totals in the middle panel to the right of the figure. The panel also shows the additional manning provided to enable combat units to remain at full strength, even though many of the Army's personnel are in transit or full-time training at any given time. As indicated in the panel, additional

¹²The Base Force contains one of the former, the mixed active/reserve unit discussed above, and three of the latter, the brigade at the NTC and the "cadre" divisions. If the "deployable" trainer units are moved to theater early in a crisis, it is not clear how reserve combat unit train-up could be conducted.

¹³The name arises because the organizations in the infrastructure base are specified through a Table of Distribution Allowances (TDA) as opposed to the Table of Equipment used for the combat, combat support, and combat service support units. Typically, TDA organizations do not deploy to the theater of operations during a conflict. In recent conflicts, as the Army has increasingly relied on sophisticated equipment and support infrastructure, this has become a less defining characteristic for the TDA.

manning is currently not provided for the reserve component, resulting in the undermanning of reserve combat units whose personnel are in training.

A cost categorization is shown in the lower panel. This panel classifies the alternatives as to whether they have costs associated with the current budget level (the same long-term recurring costs as the Base Force), or a budget level that is about 10 percent lower.

Analysis

The capability of the Base Force to generate fully trained combat (maneuver) units is illustrated in Figure 8.3. The upper portion of the figure repeats the depiction of the Base Force explained previously, to provide a convenient reference.

The lower panels of Figure 8.3 show a generalized training plan using the graphic symbols from above to represent the number of trainer and trainee units and the time it would take to accomplish the training. The two panels contrast the implicit expectations of Army planners (left panel) with our assessment of how quickly the Base Force could prepare reserve maneuver units for combat (right panel). The vertical axis of each panel identifies the units available to provide training to the reserves, e.g., the left panel shows the parent divisions training their three round-out brigades. The horizontal axis shows the number of months after mobilization. Units to be trained are located on this trainer-time grid according to when they would be ready to deploy. For example, the left panel shows the three roundout brigades being fully trained up by their parent divisions approximately three months after initial mobilization.

The Base Force Expectation. As illustrated in the lower left panel of Figure 8.3, the *implicit assumption* is that the three roundout brigades could be available in about three months (90 days). The Base Force would also be capable of training the equivalent of a division—three heavy brigades—approximately every three months thereafter to rebuild non-deployed Army capability in the CONUS. This would *restock* non-deployed combat capability at a very slow rate and raises questions of both the deterrent value of the reserves and the immediate capability to respond to a second contingency.

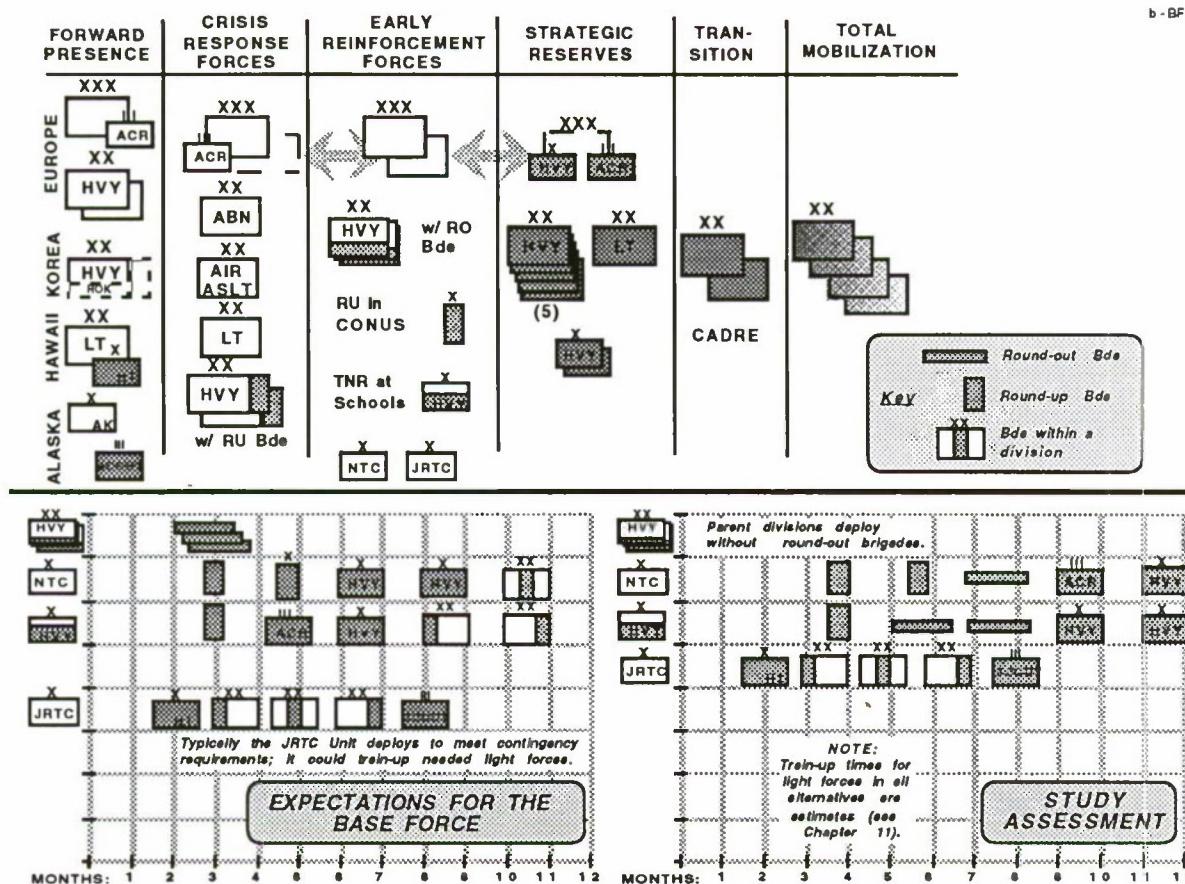


Figure 8.3—Army Base Force (Train-Up Profile)

The Base Force Capabilities. Our estimates of post-mobilization training requirements (see Chapter 7) suggest that, *only under the most optimistic assumptions concerning troop and combat-leader proficiency will roundout or roundup brigades be ready for combat in 90 days*. The units need more time to hone their combat skills, and the combat leaders need time to master the difficult tasks of synchronization and coordination. Active brigades could be deployed as two active divisions instead of waiting to train their reserve units or as three divisions, by replacing the reserve brigades with active brigades from Europe, as was done during ODS/S. However, this would deprive the reserve brigades of their anticipated post-mobilization trainers, and it is not clear how these units would complete their preparation for combat. In contrast to the force during ODS, the Base Force does not have sufficient additional active units available to train the roundout brigades.

Our assessment of the post-mobilization training capability of the Base Force was that five months into a contingency, only two reserve heavy brigades (less than a division's combat power) would be ready to deploy, instead of the five to seven heavy brigades that were expected. This is very much slower than the rate that we judged above to be excessively long.

In sum, we found that the Base Force faced two problems in meeting the total force needs of the National Military Strategy: having fully trained reserve combat brigades to complete the forces needed for an initial contingency, and quickly rebuilding the Army's rapid response capability "to respond to another contingency"—as a deterrent or as a fighting force.

The NGAUS Proposal

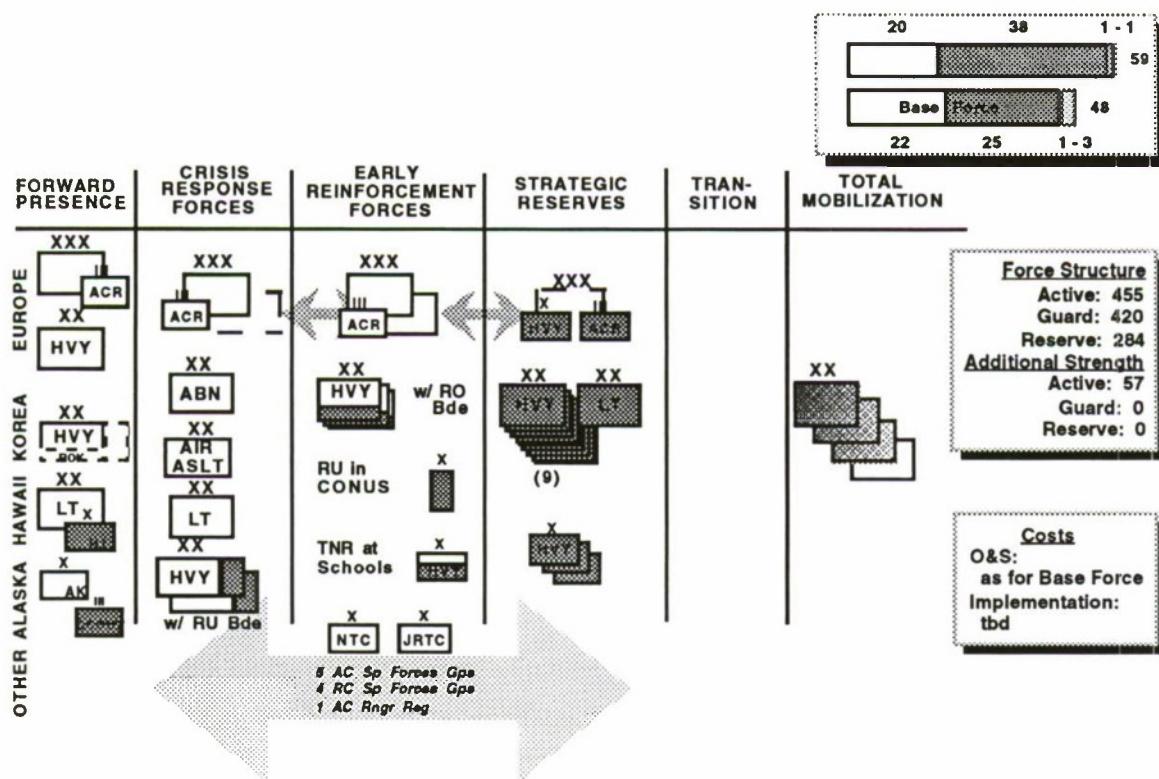
In its February 1992 paper, the National Guard Association of the United States and Adjutants General Association of the United States proposed a force structure alternative to the Base Force. This alternative is intended to "meet foreign and domestic military needs in an efficient and cost-effective manner" by relying on the cost differential between active, National Guard, and Army Reserve forces, so that "additional capability can be provided at the same cost."¹⁴ We worked with members of the NGAUS staff to make sure that we fully understood their proposal for additional National Guard and Army Reserve forces. NGAUS, however, was not definitive about the structure of the active part of the force, and we made adjustments that seemed appropriate to project a force of equal cost with the Base Force. The NGAUS proposal is detailed in Figure 8.4.

Description

The NGAUS proposal increases the number of National Guard divisions from the six in the Base Force to ten, and has nearly 35,000 fewer active duty members and over 160,000 more reserve (100,000 in the National Guard and 62,000 in the Army Reserve). Our detailed cost estimates indicate that the DoD could accommodate the NGAUS proposals and, at current budget levels, still afford eleven active divisions, rather than the ten active divisions suggested by NGAUS. Specifically, within the existing budget, we increased the strategic reserve by four divisions, reduced the number of divisions in Europe by one, eliminated the two reserve cadre divisions and provided an

¹⁴National Guard Association of the United States and Adjutants General Association of the United States, *An Alternative Force Structure Proposal*, February 1992, p. i.

additional armored cavalry regiment in the CONUS early reinforcement forces. The NGAUS proposal also meets the National Guard manning level that was authorized by Congress for fiscal year 1993.



g - NC13+

Figure 8.4—National Guard Association Proposal

Analysis

The NGAUS force has many of the same characteristics as the Base Force and suffers from the same two problems mentioned above. While the NGAUS force effectively trades a forward presence division in Europe for four strategic reserve divisions in the CONUS, *none* of these units would be immediately used in an initial contingency. The loss of the division in Europe could make it more difficult to deploy a combat force to a second contingency, but this is partly offset by the additional CONUS-based armored cavalry regiment that we provided.

Like the Base Force, and given our assessment of the time it takes to prepare reserve brigades for combat, the NGAUS alternative cannot provide the necessary fully trained reserve combat units in 90 days. Also like the Base Force, the NGAUS proposal does not adequately provide for the training of follow-on reserve combat units. Our assessment of post-mobilization training for the NGAUS force is identical to that shown in Figure 8.3 for the Base Force, approximately two reserve brigades at about four months after mobilization, with the next two to follow at about the six-month point.

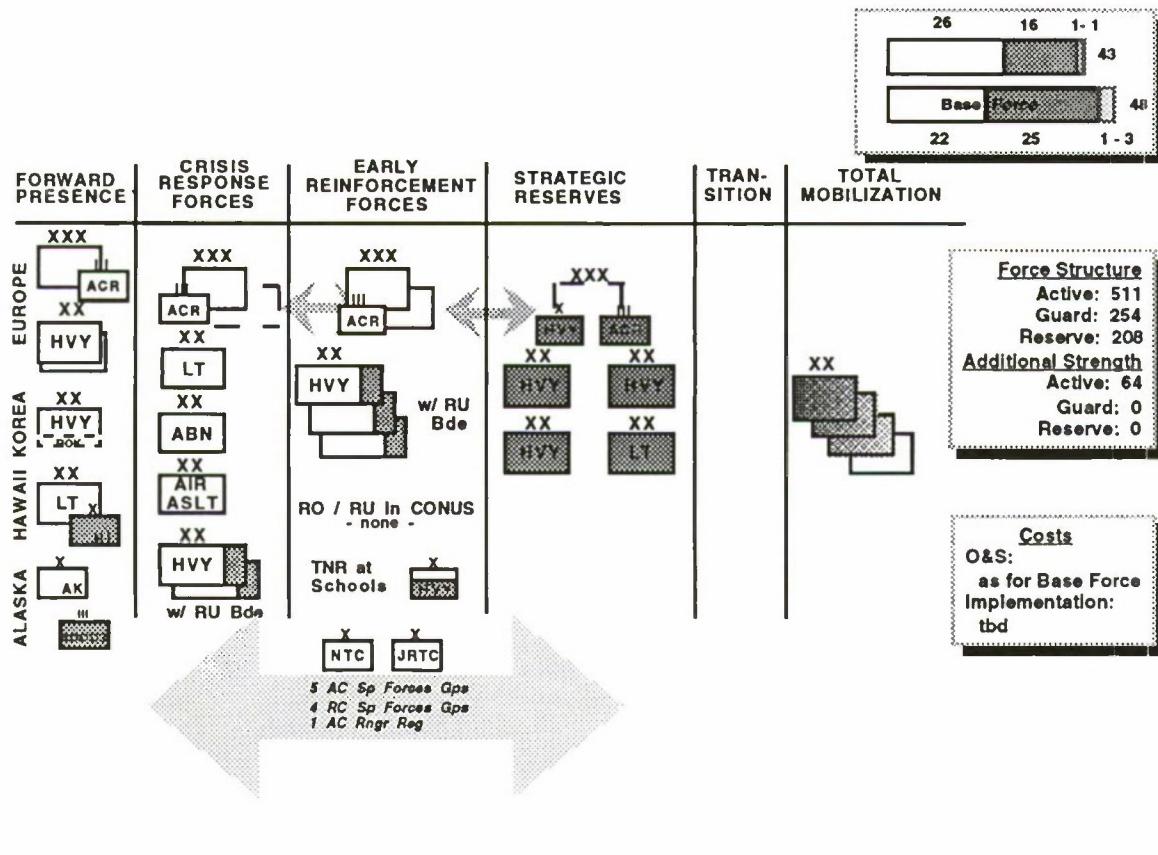
In sum, while the NGAUS force has fewer active personnel than the Base Force and is substantially larger in overall size, it is not likely to affect our ability to respond to an initial contingency, nor to provide additional force for a second contingency. As specified by NGAUS, this force does not provide the additional post-mobilization training capability that would be required to prepare the additional four reserve divisions for combat.

The Enhanced Active Army Force (Roundup Only Alternative)

One approach that has been proposed in discussions with senior Army leaders is to ensure that there are enough active combat brigades to provide the "decisive force" required for the most demanding MRC by eliminating the roundout divisions and replacing them with fully structured active divisions. Existing reserve brigades would round up active divisions when they became available after the required post-mobilization training, or their personnel could be assigned, as needed, as fillers or to replace combat losses. In order to make this option cost the same as the NGAUS or Base Force, the larger active force required that we reduce the number of National Guard divisions. This force also met the congressional mandate that we consider at least one force option that had "significantly higher" levels of active manpower. The details of this force are presented in Figure 8.5.

Description

Forward presence forces are similar to those of the Base Force with the exception that there is no reserve augmentation for the two-brigade division in Korea. Early reinforcement forces are substantially different in that they include an active component armored cavalry regiment and three additional active brigades. These brigades provide the three early reinforcement divisions with a three-brigade active component nucleus that is capable of deploying without a post-mobilization training delay. These three brigades



a - ACB-

Figure 8.5—Enhanced Active Army Force

and their non-divisional combat and support forces have a somewhat higher proportion of active component units because of their envisioned earlier deployment. These divisions are augmented by reserve roundup brigades, such divisions thus forming "rectangular," or four-brigade, divisions. Once augmented, they might be able to sustain 24-hour operations for a longer period of time. The strategic reserves included in this alternative consist of three heavy divisions; two independent, heavy brigade-sized units; and a light division.

As shown in the upper right panel of Figure 8.5, the overall force is smaller than the Base Force by some five heavy brigades; there are four more active heavy brigades in this alternative than in the Base Force.

Analysis

The Enhanced Active Army Force alternative is more able than the Base Force or the NGAUS force to meet the initial contingency requirements. However, it suffers from very nearly the same limitations as the Base Force in its inability to rapidly prepare follow-on reserve forces to ensure that the United States has a ready force as deterrence against a second contingency, or to meet the requirements of that conflict should it occur. As shown in Figure 8.6, only three reserve brigades can be trained at a time; thus, very few reserve combat divisions can be rapidly brought up to standards.

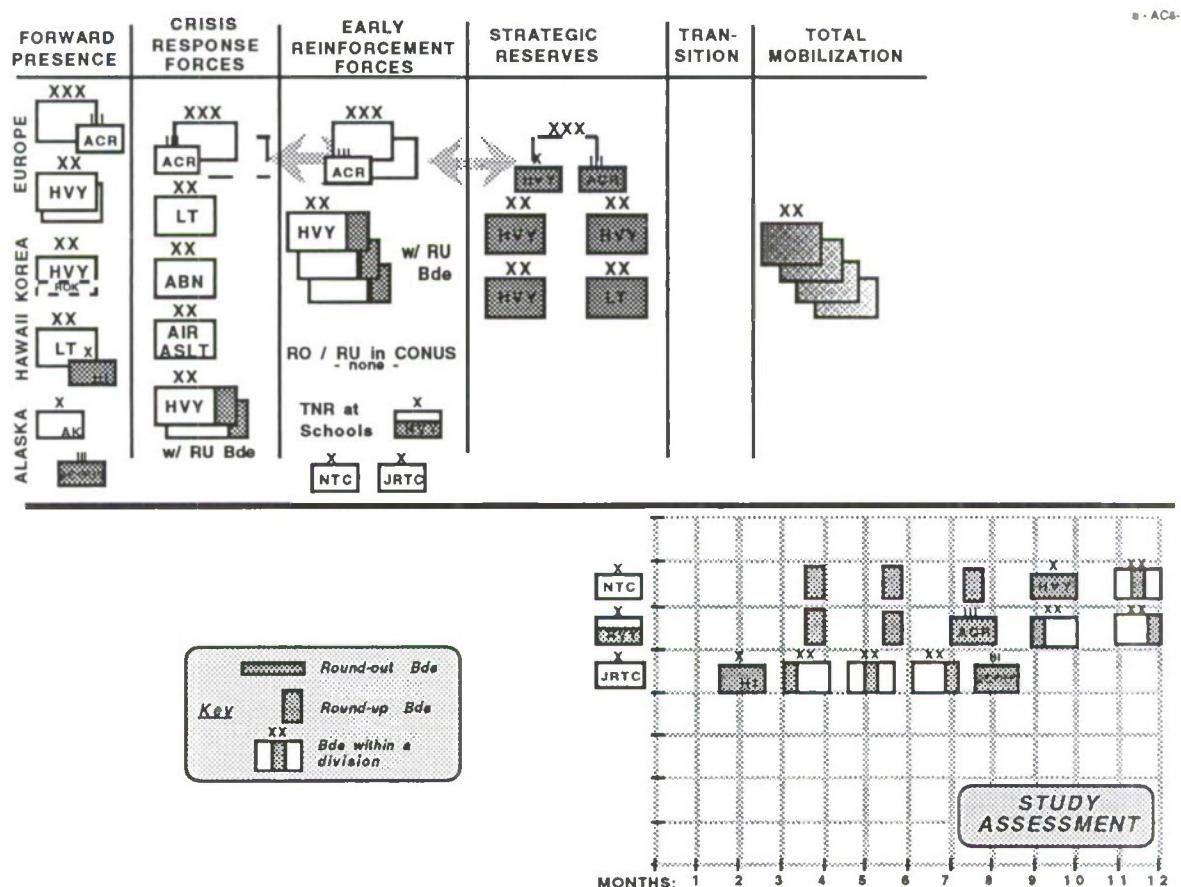


Figure 8.6—Enhanced Active Army Force (Train-Up Profile)

Finally, this force sharply reduces the number of drilling selected Army reservists. During our political/military game, the players judged this force to be politically unacceptable. Given that this option would reduce reserve force

levels below the Base Force and that the active Army manpower level that would be necessary has not been accepted by Congress, we believe this force would be *politically* unacceptable.

Alternative "i"

NDRI and LMI have worked to develop a force option that corrects the problems noted above: the involvement of reserve combat units in the first MRC and rapid building of fully trained units that can "respond to another contingency." In addition, we have addressed alternative missions, training strategies, and "mix of active and reserve component combat support and combat service support units"¹⁵ as directed by Congress. This force option utilizes more reserve personnel than the Base Force, but less than the NGAUS force. The key features incorporated in this force are:

- The integration of Selected Reserve units into active formations of lower-level (battalion- or company-roundout) to ensure that the early reinforcing divisions can deploy, when required, with a fully trained reserve complement.
- Reliance on four-brigade, "rectangular" divisions built with reserve roundup brigades to provide reserve forces that could deter or respond to contingencies.
- Providing for reserve unit additional manning that would allow reserve units to be fully manned by trained personnel so they can quickly deploy.
- The creation of specialized active component trainer commands to provide effective and timely post-mobilization training. During peacetime, these commands would also support on-going proficiency training of the reserves.
- A shift of selected portions of CS and CSS missions to the reserve component to offset the cost of the above initiatives.
- The adoption of the associate unit concept to provide extra crews, operators, and maintenance personnel select Army units, such as attack helicopters, Multiple Launch Rocket System (MLRS) artillery units, and select support units to enable 24-hour operations and to provide a robust support capability for early deploying units.

¹⁵National Defense Authorizations Act for Fiscal Year 1993 Conference Report, p. 96.

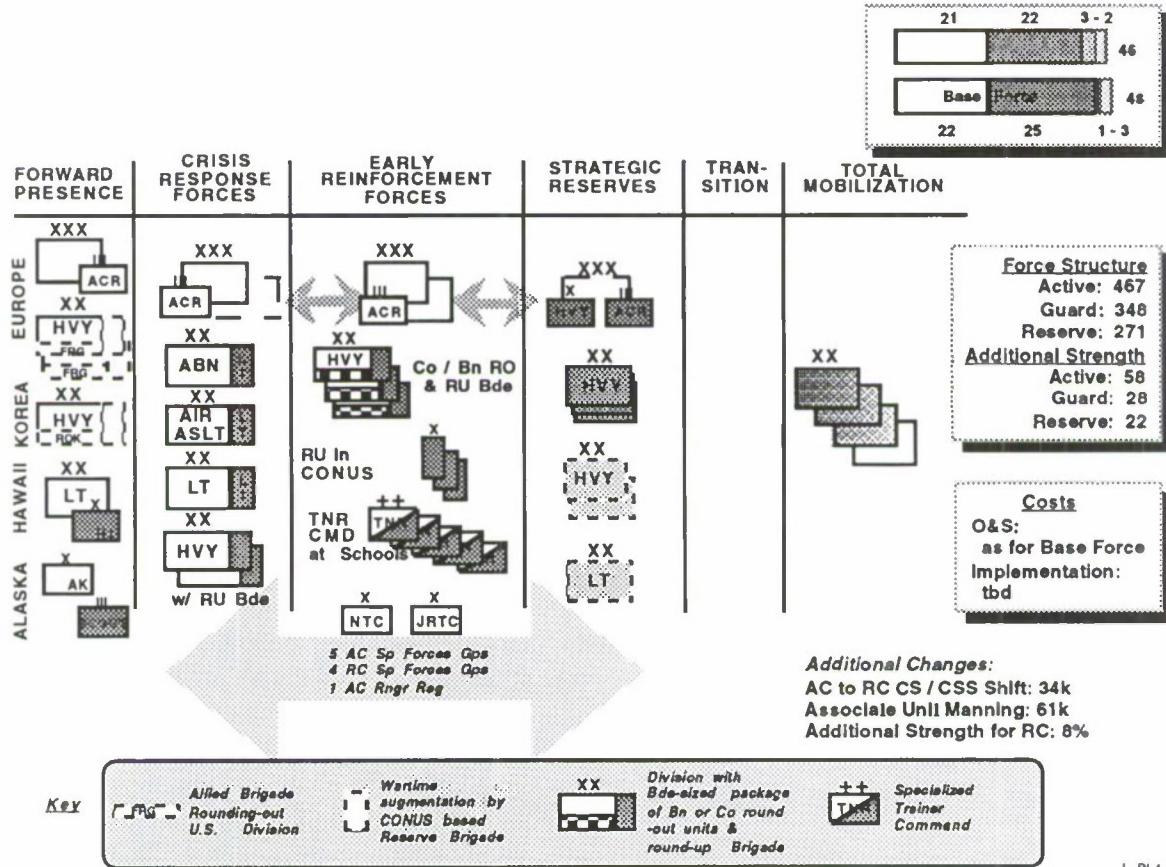


Figure 8.7—Alternative “i”

Description

The key features incorporated in Alternative “i” are illustrated in Figure 8.7. The forward presence forces in Europe consist of two divisions modeled after our current forward presence in Korea. These divisions consist of two U.S. heavy brigades each. Each relies on a third allied brigade to complete its readily available combat forces in an extension of the current move within NATO toward more reliance on multinational units. These divisions are also augmented with a roundup brigade of U.S. reserve forces, stationed in the CONUS, which would be available to augment the divisions in Europe once they have been trained up. (These are depicted in Figure 8.7 as part of the early reinforcement forces along with the roundup brigade for the division in Korea.)

The crisis response forces also incorporate additional reserve forces in the form of roundup brigades of light infantry to augment the specialized divisions. These reserve units are designed to provide fundamental light infantry capabilities for these specialized forces. The purpose is to ensure that the specialized capabilities were not tied down by necessary combat and security duties that precluded their availability for missions that can only be performed with specially trained and equipped forces.

The early reinforcement forces are larger and more responsive in this alternative than in any of the force structures previously discussed. The increased responsiveness is due to the reliance on lower-level roundout (denoted with the checkerboard pattern in Figure 8.7) in each of the heavy early reinforcement divisions. In our illustration of this concept, a brigade-sized package of combat forces is integrated into the three active brigades in battalion or company-sized units. (See Appendix C for a more detailed description of battalion and company options.) This allows the parent units to deploy as three-brigade divisions with a fully trained reserve complement, and allows them to meet contingency requirements.¹⁶ The larger early reinforcement forces are due to an additional fourth brigade in each division (a reserve roundup brigade). These augment the deployed forces after completing post-mobilization brigade-level training. The early reinforcement forces also include an active armored cavalry regiment.

Strategic divisions in this alternative are of two different types: The first type is fully constituted and has a primary mission as a division. (There are three heavy divisions of this type; they are shown with darker shading in Figure 8.7.) The second type is a unit whose maneuver brigades have been "pushed forward" in the mobilization sequence to provide roundout brigades for earlier deploying forces (the two heavy divisions and one light division shown with lighter shading and a dashed outline in the figure). The reserve divisions in this category consist of the division headquarters and division troops. They have a primary mission of providing roundup units for the crisis response and early reinforcement forces, as well as the responsibility for managing the mobilization, training, and deployment of their reserve forces during a crisis.¹⁷ Each of the two heavy reserve divisions in this cate-

¹⁶Each division is afforded a brigade-sized package of reserve combat power, which is organized and integrated in company-level or battalion-level building block units.

¹⁷This dual relationship is similar to that practiced today in the Air Force Associate Program in which reserve crews are organized in associate squadrons to facilitate the management of reserve component matters but augment active component squadrons for operational employment.

gory would be associated with four roundup brigades; the reserve light division would be associated with the three light roundup brigades.

One of the most significant innovations in this alternative is the establishment of specialized trainer commands. These five commands (depicted by the rectangles with diagonal lines in Figure 8.7) would provide post-mobilization training for reserve brigade-sized units. They could simultaneously train five roundup brigades in most major scenarios. Three of those commands would also form an active cadre for the three fully structured strategic reserve divisions once their post-mobilization training mission was complete. The remaining two trainer commands would continue their training mission after full mobilization. Together with the training units at the National Training Center and the Joint Readiness Training Center (JRTC), they would provide a core capability to develop new units during total mobilization.

The force structure for Alternative "i" also includes several other initiatives detailed in the appendixes.

- It incorporates a shift of 34,000 CS and CSS spaces from the active component to the reserve component. Our analysis indicates that such a shift is not only desirable but possible, with a definable (and controllable) level of risk.¹⁸ (See the classified companion report.)
- It provides for an additional 8 percent strength for reserve units to ensure that these units are more fully manned by trained personnel (Appendix D).
- It provides for 60,000 additional reserve personnel in associate units that provide extra operators and maintainers to leverage existing equipment such as attack helicopters and MLRS rocket launchers. This would also allow more dedicated, around-the-clock support operations (Appendix F).

¹⁸The National Defense Authorization Act for Fiscal Years 1993 and 1994 has amended Section 402 of the preceding year's act (the legislation defining this study) to call for an assessment of the effect on combat readiness of realigning 13,700 CS and CSS positions from the active component to the reserve component (see *Congressional Record*, October 1, 1992, p. H10239 and H10494). A detailed analysis of this issue is presented in the classified companion report. It indicates that an even larger shift is practical, though such a shift does entail some risk. It should be noted that while a shift of the size and kind included in our alternatives is sufficient for force sizing and cost purposes, our analysis indicates that the support forces in each of the alternatives presented here may need to be re-structured to meet the support requirements implied by the scenarios we have examined. This means that even though the magnitude of the shift described in the Authorization Act appears to be a prudent change, the specific units involved may not be the ones that can be shifted to the reserve component.

Analysis

The Alternative "i" force was designed to better meet contingency requirements (1) by integrating reserve units at a lower level to ensure that the roundout unit can be made ready and deploy with its parent unit and (2) by explicitly providing for the rapid training of reserve brigades to ensure a capability for a second contingency. These post-mobilization training profiles are shown in Figure 8.8.

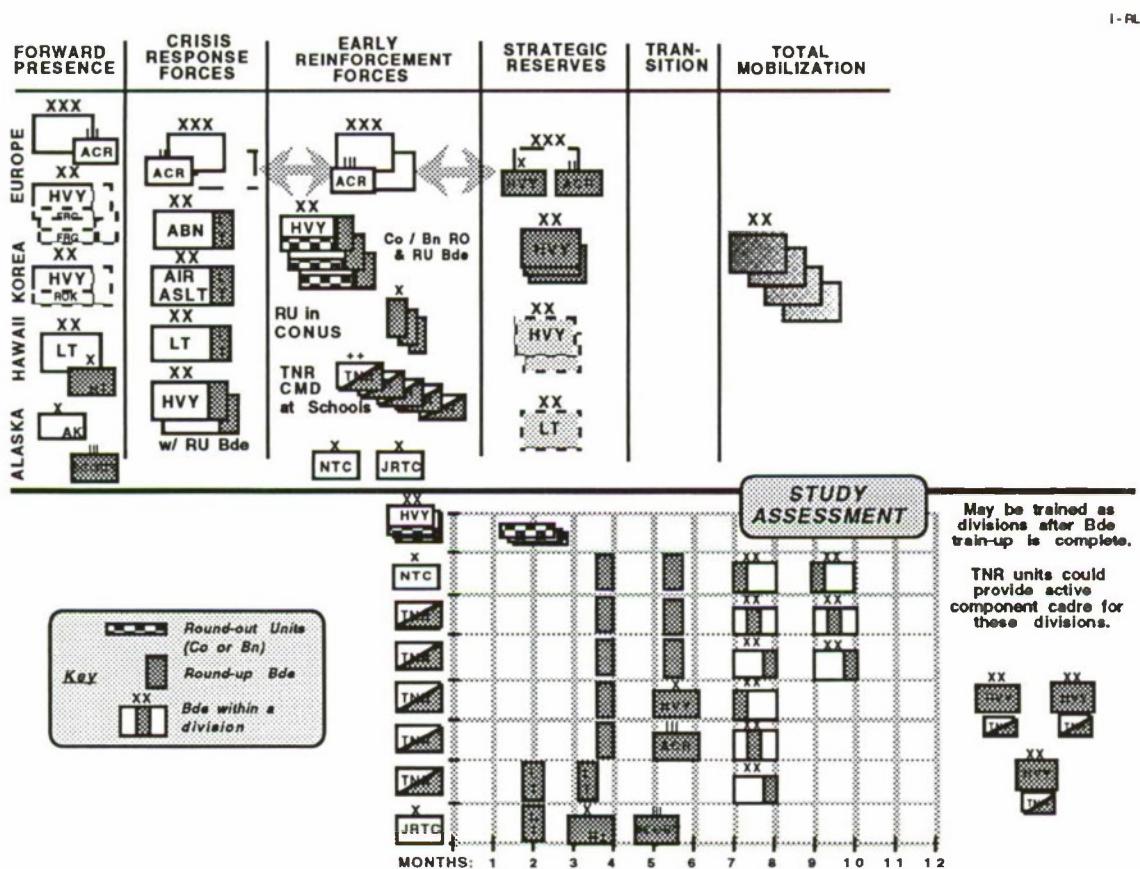


Figure 8.8—Alternative “i” (Train-Up Profile)

These changes substantially decrease the elapsed post-mobilization training period required to provide a force that could be rapidly deployed to handle a second contingency. The strategic reserve in this force is available (fully trained) months earlier than in any of the alternatives previously examined. After they have completed their post-mobilization training mission, these units could become an active component cadre around which new divisions could be formed.

Alternative "j" — A Constrained Version of Alternative "i"

The force structure alternative just described does not use the full number of Army National Guard and Army Reserve personnel authorized by the Congress for fiscal year 1993. Since Congress has specified that this fiscal year 1993 level must be addressed by this study, we developed Alternative "j" to meet that requirement.

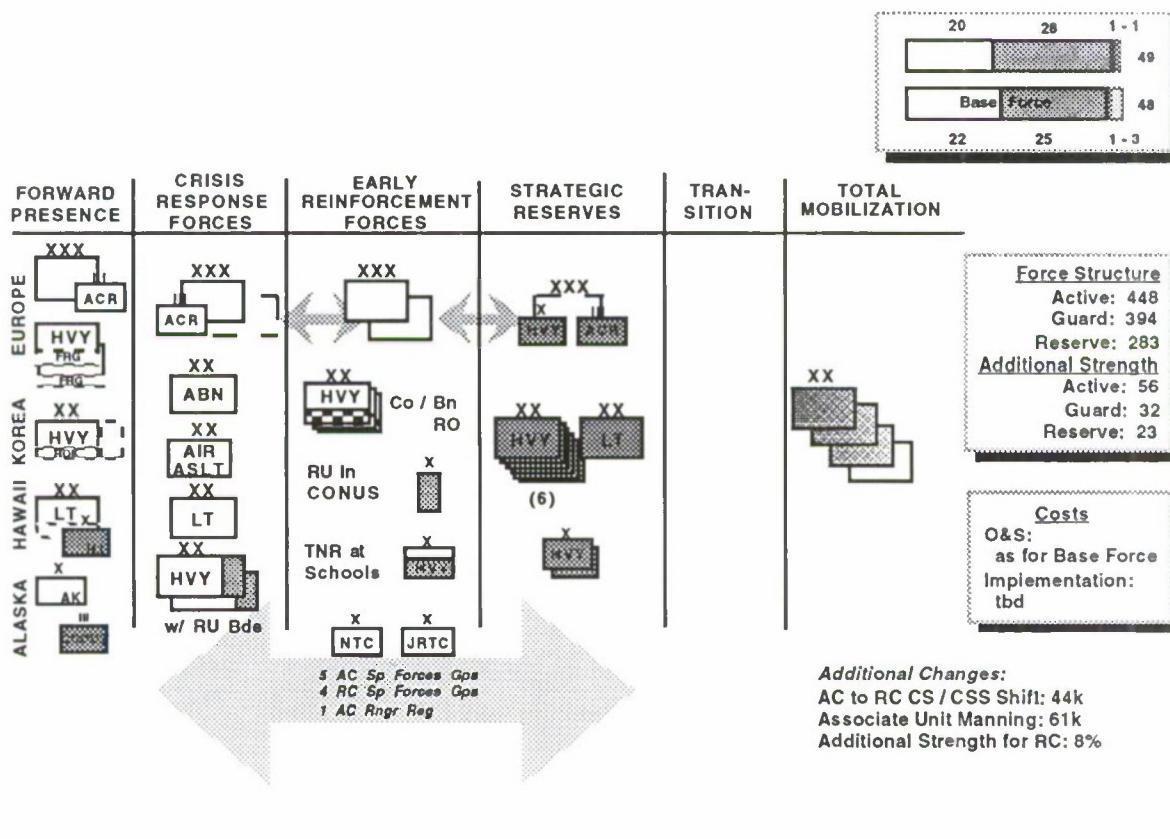


Figure 8.9—Alternative "j"

Description

As shown in Figure 8.9, this alternative incorporates many of the features of Alternative "i," but cannot incorporate them all and still reach the fiscal year 1993 reserve personnel authorization. The chief difference is, following the

principle of focusing on the first contingency first, the elimination of the specialized trainer units and the adjustment to reserve forces that results. We show the reserve brigades that rounded out active divisions in Alternative "i" as fully formed National Guard divisions in the strategic reserve. Given the small capacity to train up the reserve maneuver units quickly, it is unlikely that they could be available as roundup units. This results in a strategic reserve of seven divisions (six heavy and one light) complemented by four brigade-sized independent units. In all, this is one heavy division more than the strategic reserve in the Base Force.

Alternative "j" does rely on lower-level integration to make the reserve complement to the early reinforcement forces more responsive, as well as providing additional reserve unit strength to preclude personnel-related readiness problems. It shifts a larger number of active component CS and CSS units to the reserves in meeting the target reserve manning levels. While this shift is greater than in Alternative "i," our analysis indicates that the deploying forces can still be supported, though this greater shift entails a somewhat greater degree of risk. Associate units are again used to augment the remaining active support units, and additional strength is provided for reserve units.

Analysis

This alternative costs the same as the Base Force and Alternative "i," but employs the fiscal year 1993 congressionally authorized personnel end-strength. By rounding out at a lower level, Alternative "j" should be able to deploy reserve combat units as part of the decisive force.

However, as shown in Figure 8.10, this alternative provides the same post-mobilization training capacity as the Base Force. Its strategic reserve is larger than that of the Base Force, but no more available.

Aspin Force Option "C"

Congressman Les Aspin, Chairman of the House Armed Services Committee, has proposed a number of force structure options for lower budget levels. The one that has received the most attention is "Option C," a ten active-division, six reserve-division force intended to counter "threats to U.S. interests that are sufficiently important that Americans would consider the

use of force to secure them.¹⁹ Our estimates of the costs for this smaller force are about 10 percent lower than those for the Base Force.

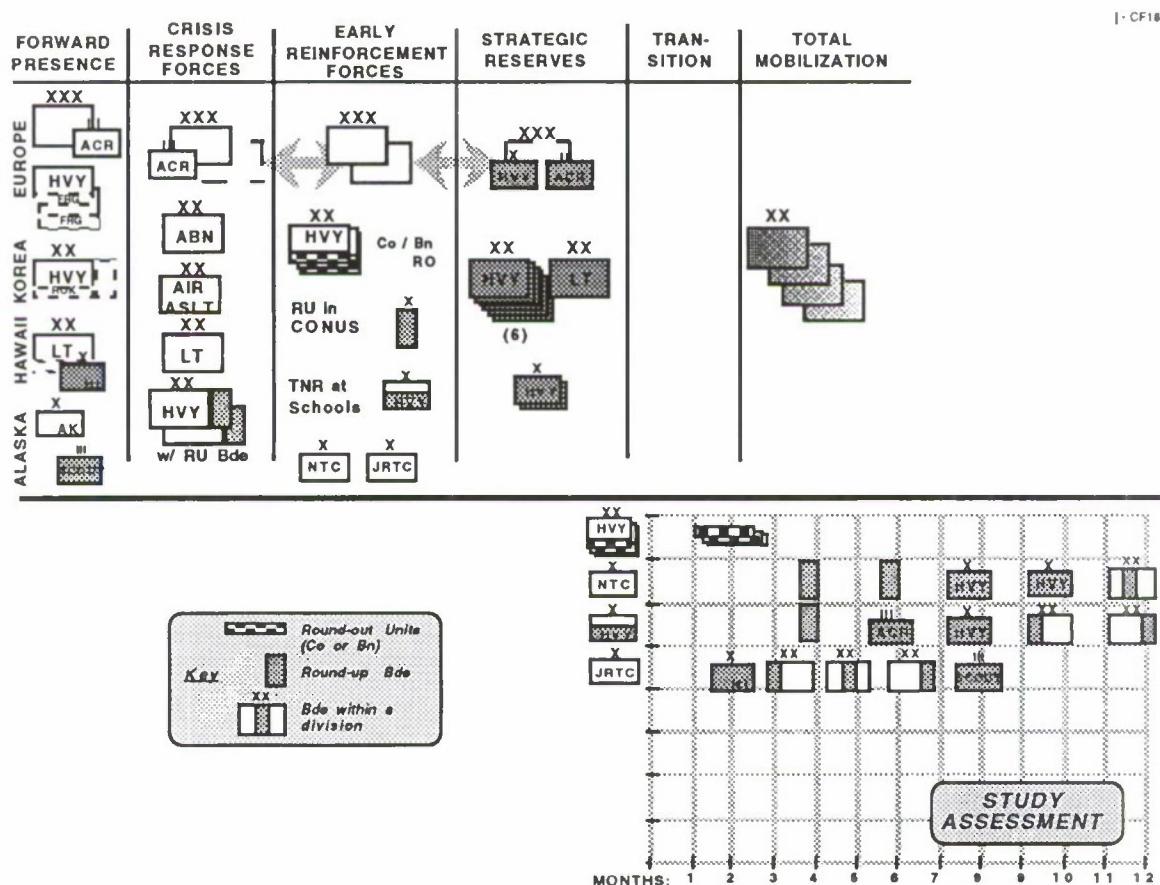


Figure 8.10—Alternative "j" (Train-Up Profile)

This force is designed to meet the most demanding of the threats to U.S. interests, potential regional aggressors. It is intended to include the capability to respond to a major contingency similar to Operation Desert Storm, to respond to an additional major contingency in Korea (mainly with airpower), to provide the unique forces necessary to conduct a Panama-like lesser contingency, to simultaneously undertake humanitarian or evacuation

¹⁹Representative Les Aspin, Chairman of the House Armed Services Committee, *An Approach to Sizing American Conventional Forces for the Post-Soviet Era, Four Illustrative Options*, February 25, 1992, p. 4.

actions, and to include a rotation base for long-term deployments.²⁰ The force is designed so that “the reserve component in general [and] the Guard in particular . . . play a significant role in our force structure for the future,” relying on both the lower peacetime costs of the reserve component and the principle that a decision to go to war should “involve a decision to send America’s citizen soldiers into war.”²¹

An important feature of the Aspin force is a more flexible concept for integrating roundup forces. According to the Aspin proposal, these roundup brigades “would be prepared to provide replacements for units broken in early fighting in a regional contingency,” and “planned for three months training post-mobilization for deployment as a brigade, but would be ready more quickly as battalion replacements, if the situation required it.”²²

Description

The Aspin Option “C” alternative is presented in Figure 8.11. Forward presence in Europe has been cut to a single division. Presence in Korea is a single heavy brigade. In Hawaii, there are no Army major combat forces, a situation of concern to the study team, especially considering that forces stationed here can provide both a forward presence in a remote state and still fulfill a crisis response mission in most circumstances. There are no active forces in Alaska, which, despite the presence in the force of a specialized, reserve Arctic combat brigade,²³ might be viewed as shortsighted. This alternative’s forward presence includes three theater defense brigades, one in Panama (active component), one in Puerto Rico (reserve), and the reserve Arctic brigade discussed above.

Crisis response forces also include significant innovations. These are an active airborne brigade (a corps-level resource) and specialized, reserve roundup brigades to complement the airborne and air assault divisions.

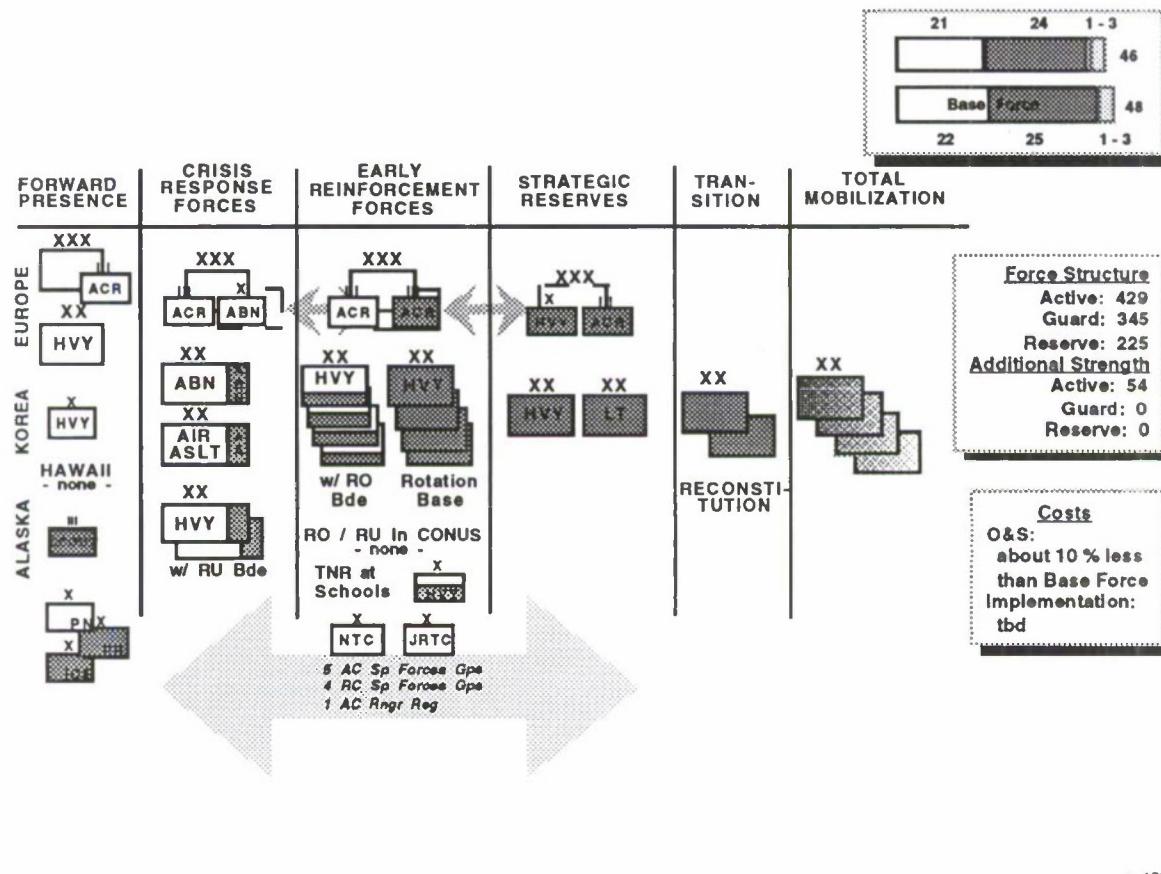
Early reinforcement forces include four divisions (one more than any other alternative discussed above), an active duty and a reserve armored cavalry regiment (two independent brigade-sized units), and four heavy reserve divisions with a clearly specified mission as a rotation base.

²⁰Representative Les Aspin, Chairman of the House Armed Services Committee, *Defense 1997 Alternatives, A Briefing*, February 25, 1992, chart II.

²¹Aspin, *Combat Power from the Reserve Component*, *op. cit.*, pp. 2-3.

²²*Ibid.*, p. 9.

²³Although this unit’s peacetime location is in the northeastern United States, it is denoted as “ICE” in Figure 8.11 to indicate its NATO commitment in Iceland.



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Figure 8.11—Aspin Force Option "C"

Strategic reserves consist of one heavy and one light division, in addition to a heavy, independent brigade and an armored cavalry regiment. While those appear to be smaller than in other alternatives, they are not significantly different from the strategic reserve of the Base Force because of the four-division rotation base that could be used for other strategic reserve missions in the absence of a need for a long-term deployment.

There is a marked difference in transition forces. The "reconstitution" divisions included in this proposal have markedly more manning than the "cadre divisions" of the Base Force and envision a different process to rebuild the nation's defense forces to a level comparable to that of the Cold War.

Although not apparent in Figure 8.11, support forces for this force have been structured to provide a slightly more robust capability in light of this alternative's constrained capabilities.

As illustrated in the upper panel on the right of the figure, the resultant force structure is two heavy brigades smaller than the Base Force—one reserve component and the other active component. Less obvious from Figure 8.11 is that this force is substantially less costly than the other Base Force-class alternatives, not because of this difference in heavy brigades but because it is smaller by the equivalent of two active component light divisions.

Analysis

As shown in Figure 8.12 the Aspin Option "C" alternative amplifies the same basic problems as the Base Force. It employs more roundout brigades assuming that they could be fully trained in 90 days. Given our estimates of the time that would be required to prepare reserve forces for combat, this would substantially degrade the offensive capability of the force.

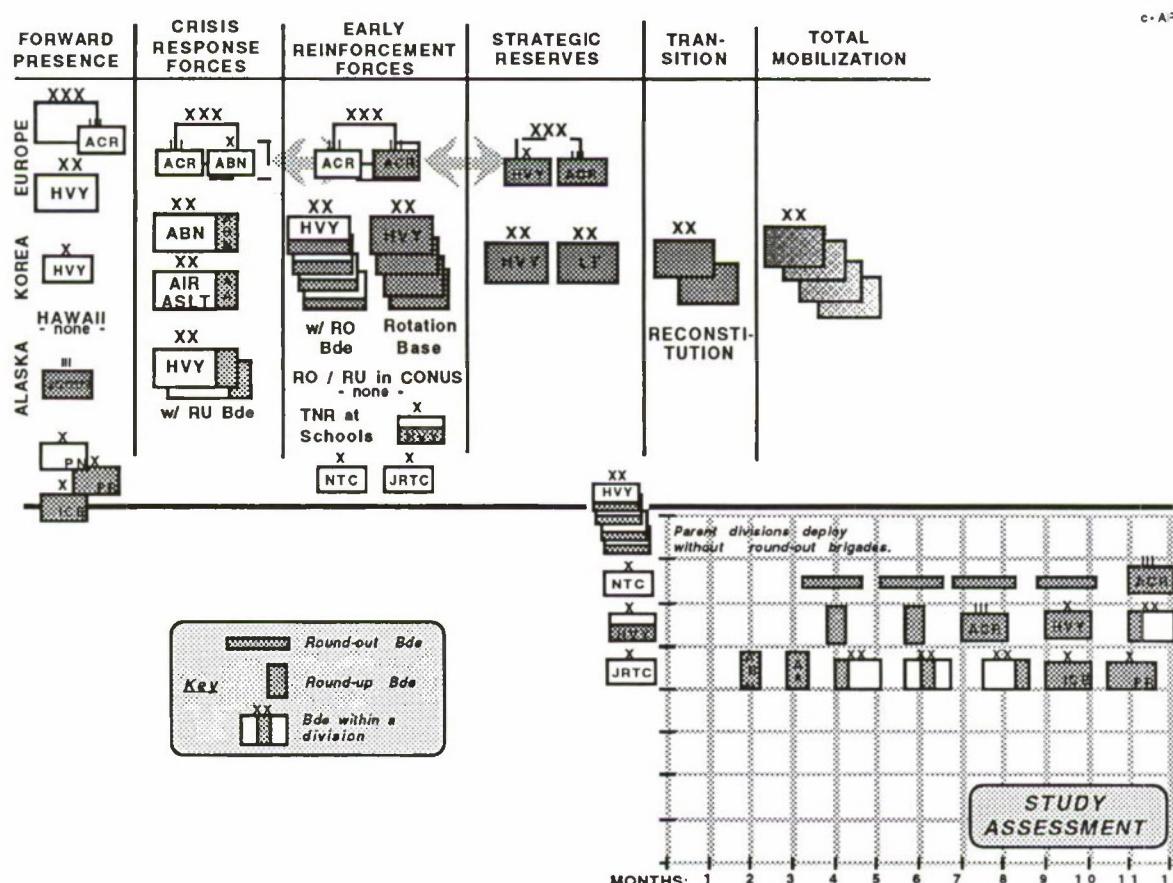


Figure 8.12—Aspin Force Option "C" (Train-Up Profile)

In addition, the Aspin alternative has a large proportion of its force structure in the reserves and provides no means to train them quickly enough to be used in a contingency. It fails to generate a decisive force for the first contingency and provides forces for a possible second contingency so slowly that there is likely to be a significant delay in providing an adequate force for either deterrence or defense in that theater.

Alternative "k"—A Reduced Version of Alternative "i"

Given the uncertainty in future budget levels, we developed a variant of the Alternative "i" at a budget level that is approximately 10 percent lower than that currently planned for the latter part of the decade.

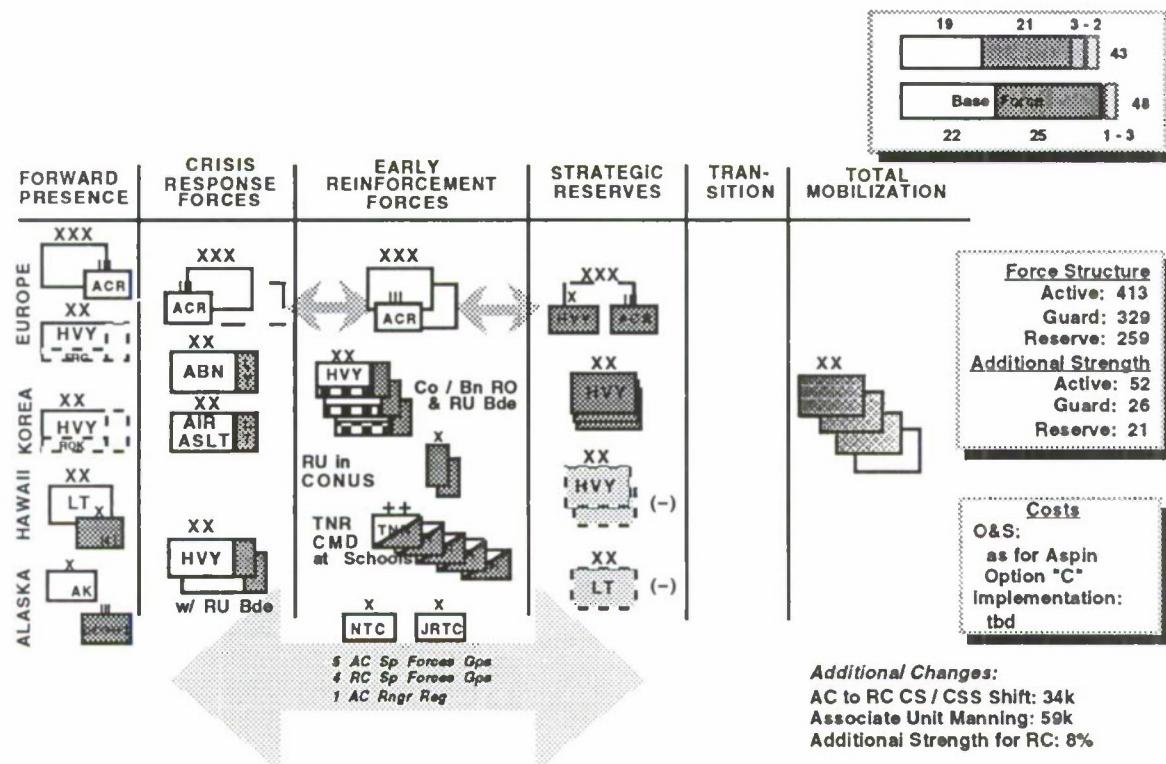


Figure 8.13—Alternative "k"—Reduced Budget Levels

Description

Alternative "k" is shown in Figure 8.13. Forward presence forces in Europe consist of one division (two active component heavy brigades stationed in Europe, an allied brigade, and a U.S. reserve component brigade stationed in the CONUS). The crisis response forces contain only two specialized divisions (airborne and air assault). Only two heavy reserve roundup brigades are depicted under the early reinforcement forces, to reflect the smaller force stationed in Europe and associated lower requirement for roundup brigades.

One heavy and one light reserve division in the strategic reserve are annotated with a (-) to indicate the absence of one of the roundup brigades associated with each of these formations. Support forces associated with these units have been sized as if the divisions had a full complement of brigades to provide a slightly more robust support structure in Alternative "k" than would otherwise be the case.

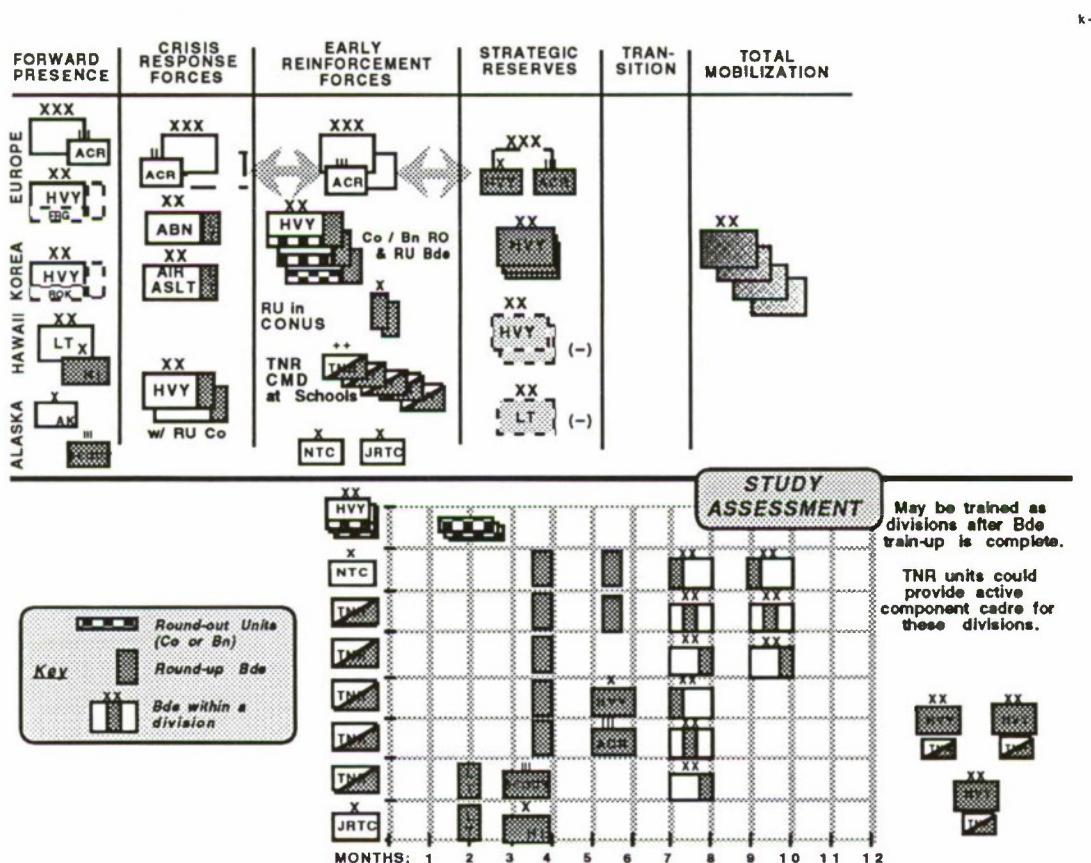


Figure 8.14—Alternative “k”—Reduced Budget Levels (Train-Up Profile)

Analysis

This alternative performs almost as well as its larger variant, Alternative "i." The primary difference is that since it is a smaller force (by three heavy brigades—two active and one reserve and four light brigades—three active and one reserve), it is short those forces when fully mobilized. As illustrated in Figure 8.14 the train-up capability of Alternative "k" is the same as that of Alternative "i." Because the force contains one less heavy roundup brigade and one less light roundup brigade than Alternative "i" (units associated with the two divisions cut to reach the lower budget level observed by this alternative), this alternative does not reach the same level of fully trained reserves as Alternative "i." It does, however, build to its smaller level just as quickly as the larger force because of the train-up capacity inherent in its five trainer commands (the same suite of specialized training resources as contained in Alternative "i").

Summary

Table 8.1 summarizes the major features of the seven Army alternatives. While all differ in size and active/reserve mix, they differ most importantly in how well they address the two problems that the Base Force faces: having fully trained reserve combat brigades to complete the forces needed for an initial contingency, and quickly building a second rapid response capability "to respond to another contingency"—as a deterrent or as a fighting force. In order to increase the likelihood that roundout units will have able leadership, will complete their post-mobilization training, and will be able to deploy with their parent units, three of the alternatives (i, j, and k) round out at the company or battalion level. Two of these (i and k) also stress the need to quickly prepare reserve combat units to fight, as a hedge against a second contingency, and dedicate part of the peacetime active duty force to ensure the training of these units even if a contingency operation is under way. Additional reserve innovations enable these combat force initiatives: (1) additional manning for reserve units to speed deployment of fully manned units, (2) a shift of some support missions to the reserves to offset the cost of the active training organizations, and (3) the establishment of new reserve associate units to provide a robust capability for the remaining active duty support units.

Table 8.1
SUMMARY OF ARMY FORCE ALTERNATIVES

Army Force Structure Alternatives/ Features	Base Force	NGAUS	Enhanced Active Army Force			Alternative "I"	Alternative "J"	Aspin Option "C"	Alternative "k"
			Same as Base Force	Same as Base Force	Same as Base Force				
Cost	Base Force	Same as Base Force	Same as Base Force	Same as Base Force	Same as Base Force	12/6/0	12/7/0	10% less than Base Force	10% less than Base Force
Divisions AC/RC/Cadre	12/6/2	11/10/0	12/4/0	12/6/0	12/7/0	9/5/2	10/6/0		
Heavy Brigades AC/RC	22/25	20/38	26/16	21/22	20/28	21/24	19/21		
Light Brigades AC/RC	13/5	13/5	13/5	13/5	12/5	8/8	10/4		
End-strength AC/RC	550/542	512/704	575/463	525/679	504/733	483/570	465/635		
Roundout model	Brigade	Brigade	None	Company or Battalion	Company or Battalion	Brigade	Company or Battalion		
RC-CSS/CS Shift	0	0	0	34,000	44,000	0	34,000		
RC Associate Unit Manning	0	0	0	61,000	61,000	0	59,000		
RC-Additional Unit Strength	0	0	0	50,000	55,000	0	47,000		
AC-Training Commands	0	0	0	5	0	0	5		

NOTE: The planning data for fiscal year 1995 defining the Base Force for this study reflect an active component end-strength (550) that differs by 14,000 from the number specified in the five year defense program (FYDP) (536,000). This difference results because the additional 14,000 drawdown of active component strength remains to be programmed.

9. Force Structure Alternatives for the Air Force

Overview of Analysis of Air Force Options

In Chapter 8, we described alternative force structures for the Army that were developed to support the National Military Strategy. In this chapter, we describe Air Force options that we developed using the same approach. However, the policy questions involved were more limited because Congress and OSD generally agree on the size and balance of the active and reserve components in the Air Force: The Defense Authorization Act for Fiscal Years 1992 and 1993 and the Base Force call for roughly the same levels of reserve and active forces.¹ Thus, we focused our efforts on the mandate to develop and assess smaller force structures at lower budget levels than the Base Force levels.

Figure 9.1 presents the four major alternatives that we considered in our analysis: the Base Force (as a benchmark for comparing cost-effectiveness) and three alternatives at a budget level 10 percent lower than the Base Force.

The Challenge Faced by Smaller Forces

Because of the need to preserve mobility/lift and battle management (C3I) capabilities, the Base Force reflects a major drawdown in the active forces that provide a power projection capability. Should additional force cuts be necessary, it is not clear that it would be appropriate to continue applying this formula; yet the mobility/lift and battle management capabilities appear to be even less desirable candidates for cuts. The implications are a further diminished power projection capability for crisis/contingency response.

Thus, the challenge for these smaller force structures is to provide an appropriate power projection capability for crisis/contingency response—particularly multi-role and interdiction capabilities—while maintaining adequate overall force size and balance.

¹National Defense Authorization Act for Fiscal Years 1992 and 1993, *op. cit.*, pp. 63–64.

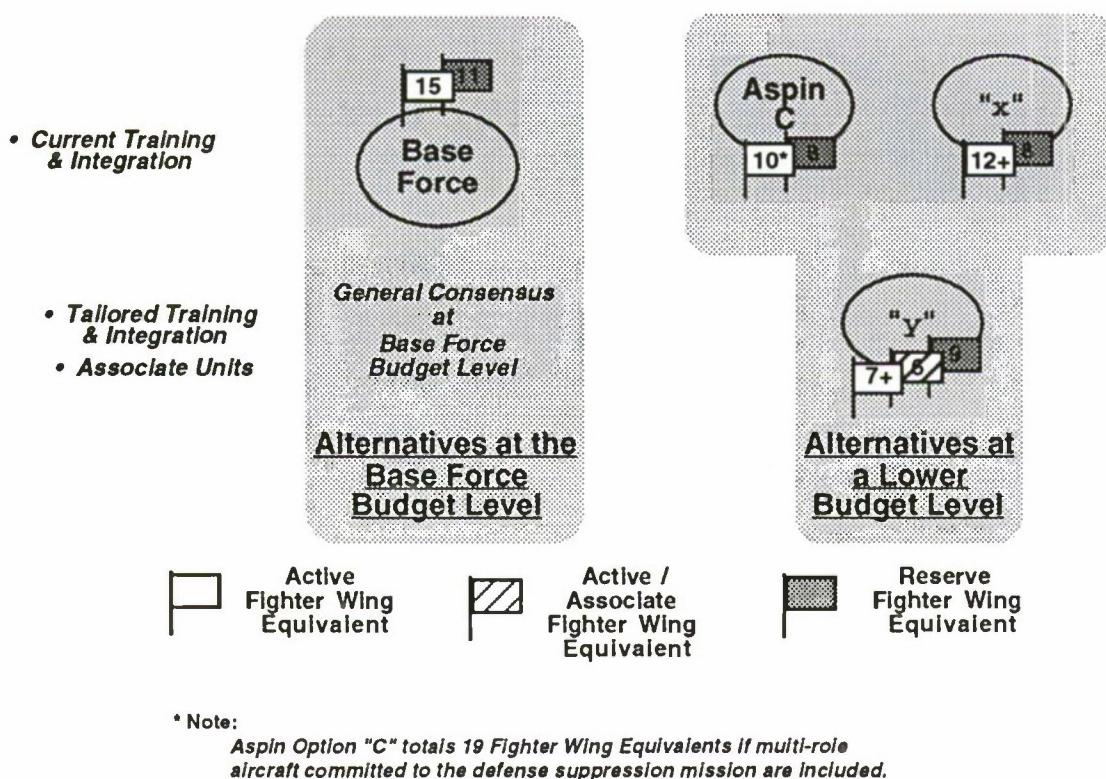


Figure 9.1—Air Force Alternative Force Structures for Final Assessment

General Characteristics of the Alternatives We Assessed

All of the lower budget alternatives have roughly the same total costs, and the portion of cost attributable to each component (active or reserve) is less varied than in the Army alternatives. This is because the alternatives differ more in *what role* the reserves play, than in *how many* reservists there are. Thus, the Air Force alternatives reflect the greater agreement on the size of the active and reserve components for the Air Force and focus on the question of *how* to rely on the air reserves to provide the most capable force.

Two of the force structure alternatives we analyzed at the lower budget level (the proposal by Representative Les Aspin and the Air Force Alternative "x") rely on the current approaches to training and integration. These forces differ primarily in the composition of the fighter force and, to some extent, in the size and mix of the mobility and lift component of the force. We believe that these two alternatives fairly represent the current general agreement

about the proper mix and roles of active and reserve component forces for smaller force structures. Because of their smaller size these alternatives face a challenge: providing an interdiction, multi-role capability, despite smaller overall force size.

The third alternative ("y") was designed in response to the challenge facing smaller force structures. This alternative differs from the others primarily in the degree of its reliance on the reserve associate concept (described in Chapter 7). It can rely strongly on the associate concept because of the high degree of integration that underpins the associate relationship, the inherent tailored training the active unit provides, and the operational advantages of this organizational structure. The savings that result are used to provide additional multi-role force structure and additional crews for the interdiction and C3I components of the force.

The Air Force Base Force

Recent Changes in Force Structure

The Base Force has been shaped by changes in our past reliance on air reserve forces. It is particularly important to understand the magnitude and nature of these changes because they explain the general agreement concerning the active/reserve mix in the Base Force.

A major reason for the consensus is that, as shown in Figure 9.2, the active force has experienced the most reductions, while the reserves have remained fairly constant. Recent and planned reductions in Primary Authorized Aircraft (PAA)² for the period fiscal year 1987 through 1997 will result in an active component that is about 30 percent smaller than it was at the beginning of this period.

These recent and planned reductions in the active forces have been predominantly in fighters as shown in the upper panel of Figure 9.3. This has changed the balance between the force's power projection (generally, bombers and fighters), mobility and lift (airlift and tankers), and C3I elements as well as the distribution of these capabilities among the components.

²Primary Authorized Aircraft are those a combat unit flies on a regular basis during peacetime training and would use during a conflict. The force structure contains additional aircraft to allow for necessary test flying, periodic maintenance, etc. The source for the data used in the figures is the Air Force Program Data dated January 1992 (applicable to the FY 1993 President's Budget).

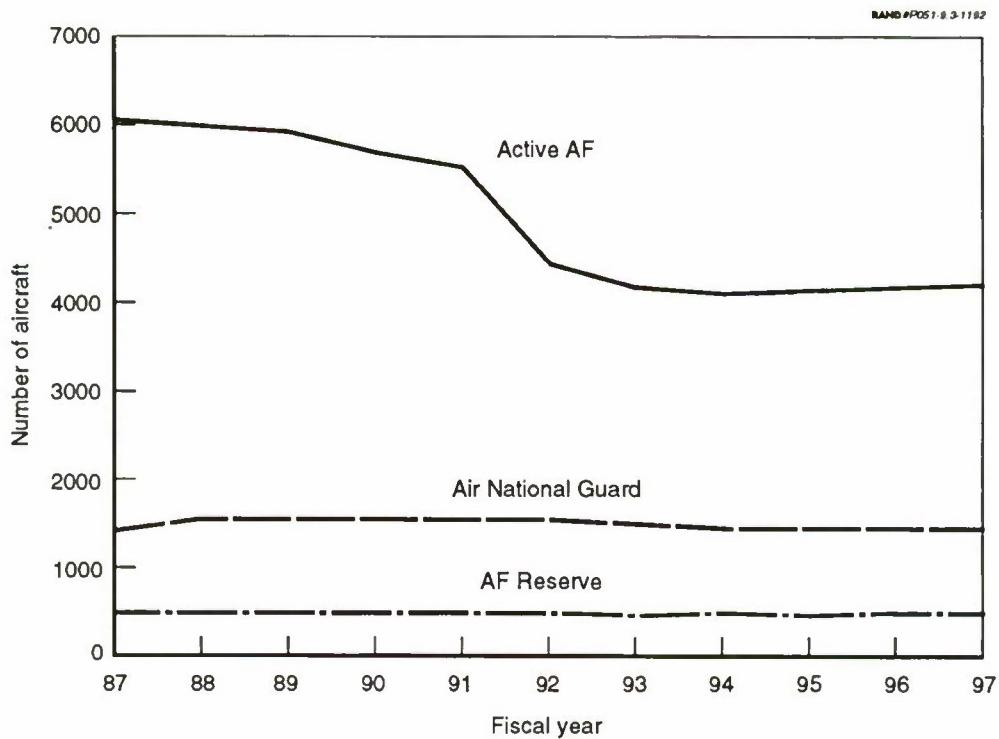
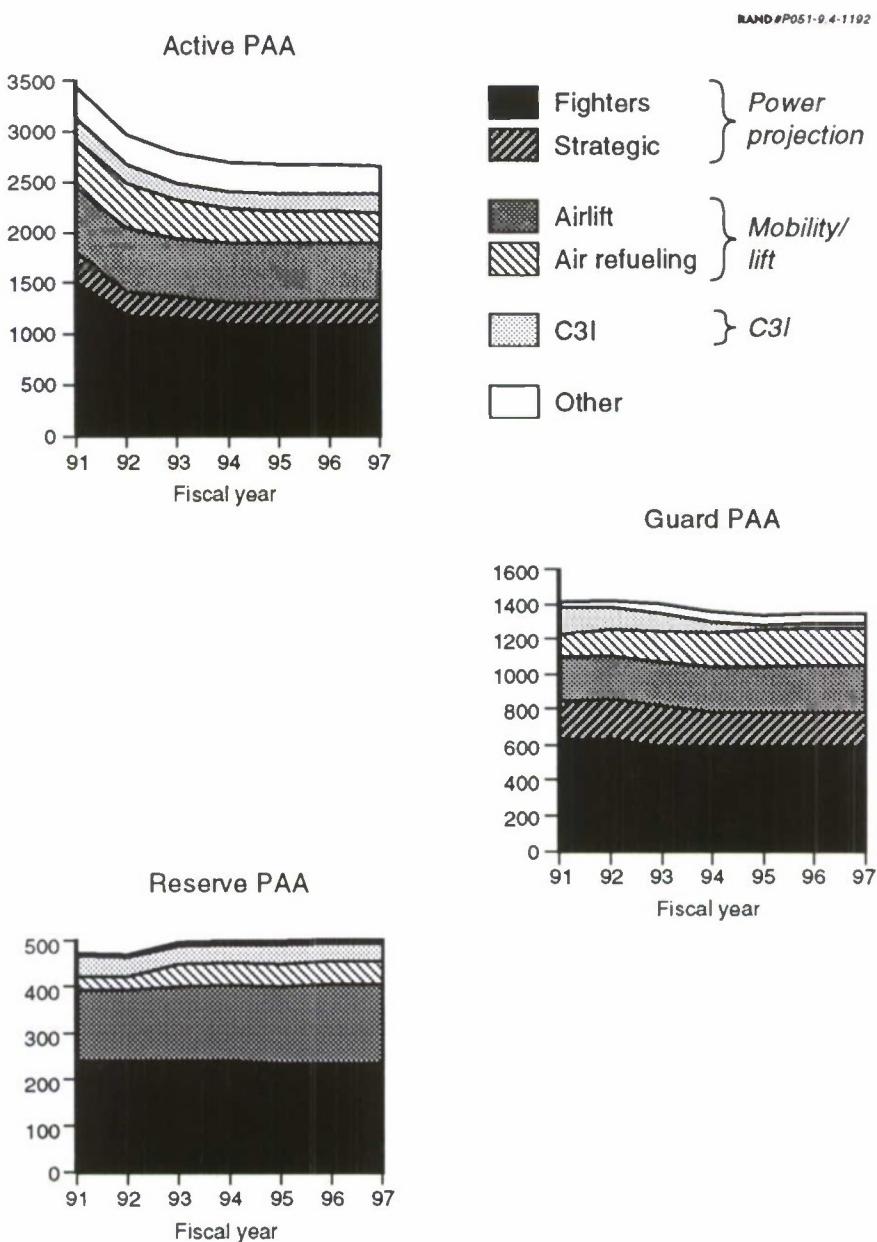


Figure 9.2—Primary Authorized Aircraft (PAA) for FY 1987–1997

Overall there is some increase in the role of the Air National Guard and Air Force Reserve in the airlift and air refueling missions. For example, the change in the Air National Guard C3I role (resulting from the retirement of the RF-4C, a C3I asset) is accompanied by an additional responsibility for the air refueling mission. The Air National Guard's role in strategic air defense continues with a small drawdown in the PAA assigned to this mission, reflecting the decrease in the strategic threat to the United States and changes in the nature of this mission from bomber defense to policing the air traffic entering the country. The net effect is that the distinct decrease in the active fighter force (and the associated greater reliance on air reserve forces for the fighter mission) dominates the picture. This change is accompanied by a marked change in the nature of the reserve fighter forces as shown in Figure 9.4.

**NOTES:**

Values are cumulative.

Strategic denotes strategic air defense for Air National Guard.

Figure 9.3—Largest Changes Are in Fighters

Within this smaller fighter force, the reserve component will take on a greater multi-role responsibility as it shifts more heavily to F-16s (see Figure 9.4). The retirement of the A-7 and some of the A-10 force changes the balance between specialized and multi-role aircraft to one that places more emphasis on the flexibility inherent in multi-role aircraft. This change affects the air reserve more than the active component.

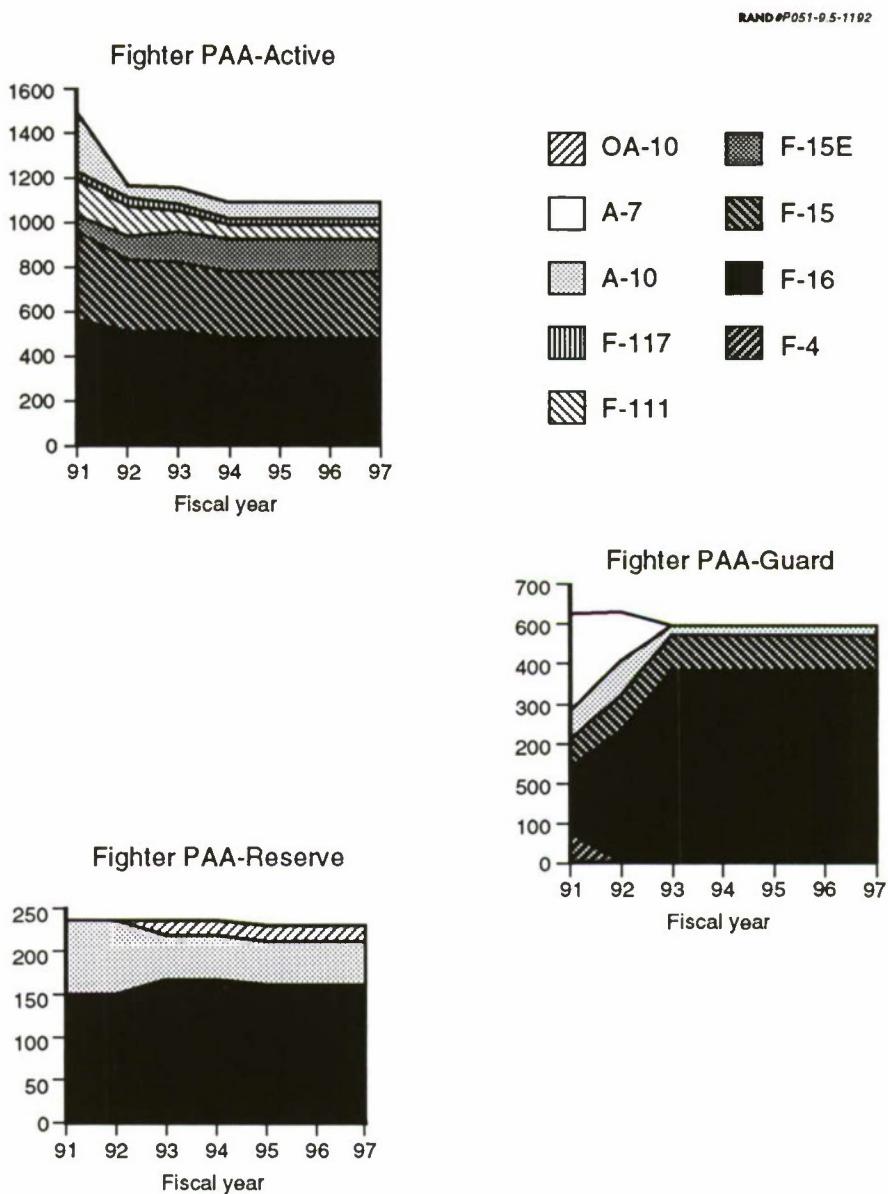


Figure 9.4—Guard and Reserve Fighter Force Is Largely Multi-Role

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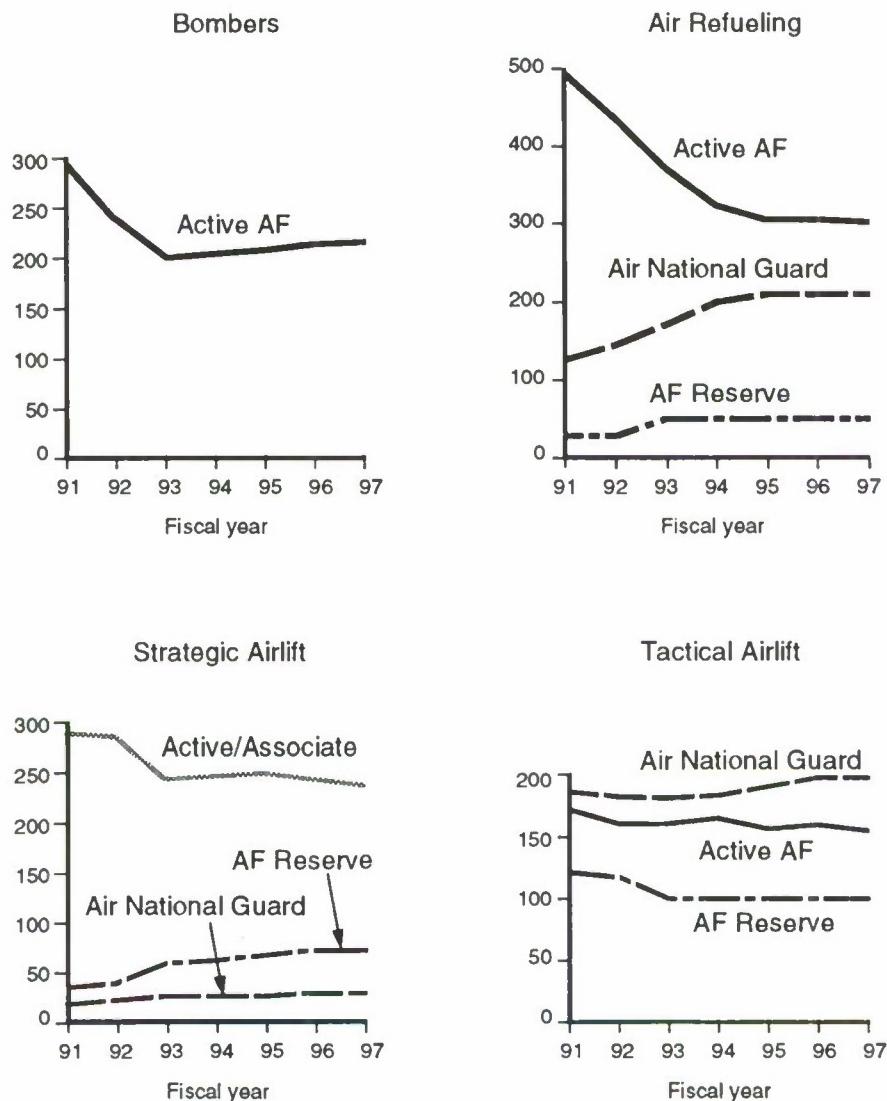


Figure 9.5—Airlift and Air Refueling Missions Rely on Reserve Contributions

The bomber force (upper left panel in Figure 9.5) undergoes a substantial drawdown to about 200 aircraft. The most recent planning data for strategic forces (not reflected in these January 1992 data) show a new reserve role in conventional bombers.³

³Budget Estimate Submission data for FY 1994, August 1992.

The air refueling force is smaller, reflecting the drawdown in fighters discussed above and the reductions in the bomber force. The reserve component will take on a somewhat greater role in the air refueling mission, as illustrated in the upper right panel of the figure.

While the overall size and mix of the airlift force (bottom two panels of Figure 9.5) remain about the same, reflecting the increased emphasis on crisis/contingency response in our National Military Strategy, there is some change in the size and distribution among components. The active component of the tactical airlift force is small in comparison to other parts of the force and may have to meet heavy peacetime crisis flying demands.

How These Changes Are Reflected in the Base Force

These changes are reflected in the configuration of the Air Force component of the Base Force, as shown in Figure 9.6. The force is often characterized as having 15 active component fighter wings and 11 reserve component fighter wings⁴; however, there is a good deal more to consider about the force and its active/reserve mix than just its fighter component.

The figure categorizes the force according to its *fundamental capabilities* (power projection, mobility/lift, and C3I) and illustrates its distribution according to its *planned responsiveness* (power projection, early reinforcement, etc.). The fighter force is measured in wings; aircraft counts (denoted in italics) measure the size of other parts of the force (the length of the bars is proportional to the number of aircraft). Forward presence forces consist of nearly seven fighter wings; crisis response forces total about nine fighter wings and over 200 bombers. Early reinforcement forces would contribute nearly 12 additional wings of fighter and attack aircraft to a contingency. The strategic reserves consist of the dedicated air defense forces stationed throughout the United States and training forces for both fighter and airlift units. Strategic depth for the mobility and lift mission is provided by the Civil Reserve Air Fleet (CRAF).⁵

⁴This is usually measured in fighter wing equivalents (FWEs), each consisting of the 72 aircraft that today's typical fighter wing flies on a regular basis in peacetime training and would use in a conflict. In addition to these aircraft, the Air Force force structure typically includes an additional 28 aircraft. These additional aircraft provide the overhead necessary to provide for tactical training, allow periodic maintenance, etc.

⁵The CRAF is currently composed of approximately 350 long-range passenger airliners and 200 air cargo aircraft organized into three stages of response (e.g., CRAF I and II were used during Operation Desert Shield/Storm). In return for commitments to the program the commercial airlines that own these aircraft receive preferential government contracts.

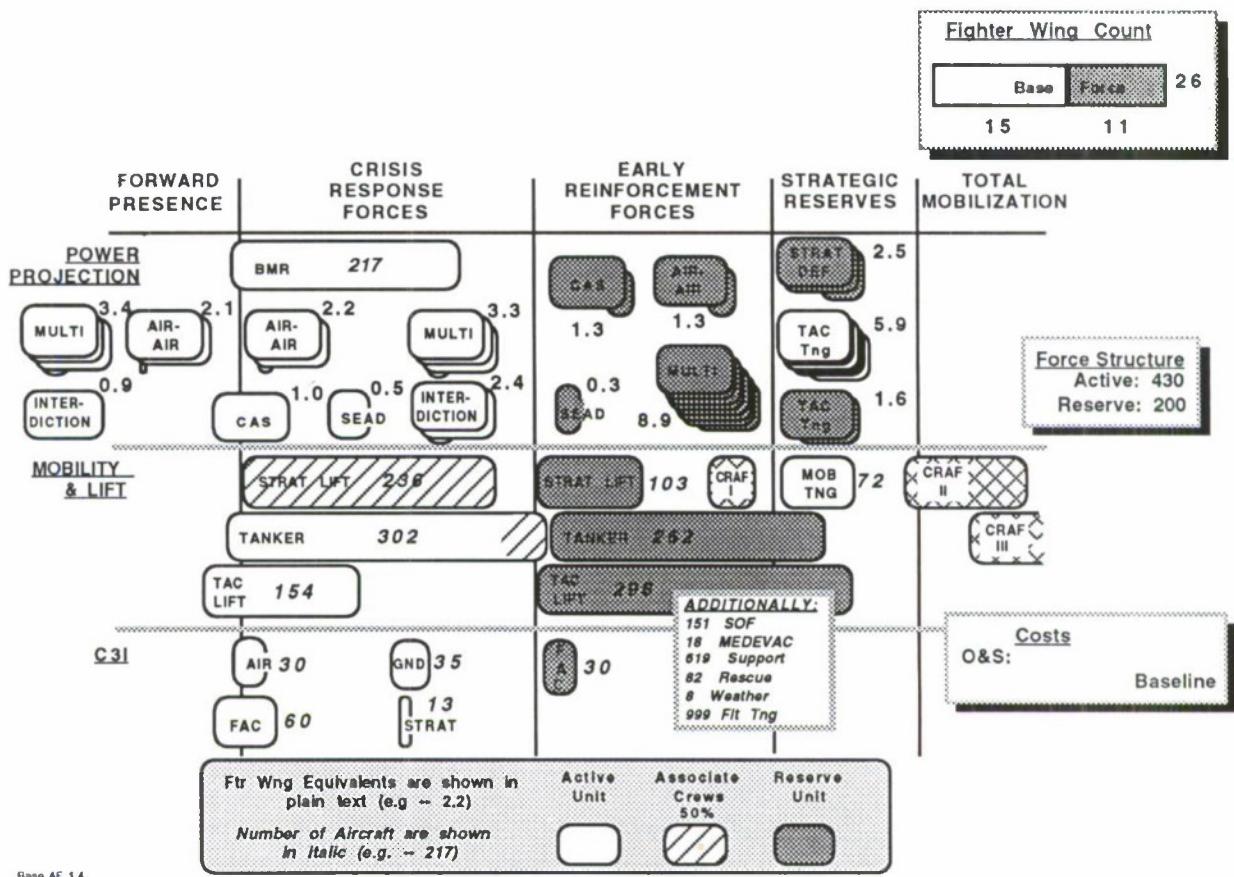


Figure 9.6—Air Force Component of the Base Force

One feature of note in the mobility and lift mission is the substantial reliance (indicated with the striped shading in the figure) on associate crews for the crisis response portion of the strategic airlift mission.⁶ Generally, the active crews in these units provide the initial response to a crisis or contingency, with the associate crews providing augmentation shortly thereafter.

Additional specialized aircraft are included in the force structure, such as those for rescue, special operations, and medical evacuation; the number and type of these aircraft are detailed in the box. Not depicted in the figure are the resources necessary to keep those aircraft flying (such as infrastructure and maintenance organizations) and units that have non-flying missions (such as civil engineers).

⁶Associate units also complement active units in the KC-10 tanker fleet and the C-9 MEDEVAC fleet.

The most recent planning data available to the study suggest that the Air Force is moving toward involving the air reserve in the bomber mission. Thus, in the future, air reserve units may play a role in all aspects of the Base Force except the specialized interdiction units and some C3I missions.⁷

As we said above, the Base Force reflects a major drawdown in the active forces, predominantly in the fighters and bombers that provide a power projection capability. This drawdown results in a greater reliance on air reserve forces, but in canonical ways (e.g., stand-alone reserve units). *Should additional force cuts be necessary*, it is not clear that it would be appropriate to continue applying this formula: the implications of such an approach to smaller forces would be, as we said earlier, a significantly diminished power projection capability for crisis/contingency response.

Air Force Under Aspin Option "C"

Congressman Les Aspin has presented an Air Force component for his Option "C" force structure alternative (we described the Army component in Chapter 8).⁸ The budget level for this force would be roughly 10 percent below that currently planned for the latter part of the 1990s.

Description of the Force

The Option "C" Air Force alternative is designed around a power projection force that includes an eight-wing fighter force for a contingency similar to Operation Desert Shield/Storm, a six-wing force for a contingency in Korea, a rotation base of four wings, and over 140 bombers for conventional operations in addition to the B-2.⁹ The resulting force would have ten active and eight reserve tactical fighter wings.¹⁰ The alternative also calls for two additional wings (one active and one reserve) for the Suppression of Enemy Air Defenses (SEAD) mission.

In addition to these power projection forces, the alternative is designed to provide a "richer" tanker-to-fighter force mix than the Base Force (1:3 vice

⁷Budget Estimate Submission data for FY 1994, August 1992.

⁸Aspin, *An Approach to Sizing American Conventional Forces* . . . , *op. cit.*, pp. 20-22.

⁹Representative Les Aspin, Chairman, House Armed Services Committee, *Defense 1997 Alternatives, Supplemental Materials*, March 24, 1992, Tables IA, IB, ID. Airlift and SEAD forces are detailed in Table III.

¹⁰Aspin, *Defense 1997 Alternatives, A Briefing*, *op. cit.*, chart IV.

1:3.5) and a strategic lift capability that is slightly greater. *Tactical lift* and C3I forces are the same as in the Base Force.¹¹

The force structure alternative proposed by Congressman Aspin is illustrated in Figure 9.7. Again, the figure arrays the force according to its fundamental capabilities, and its intended responsiveness. The eight-wing "Desert Storm Equivalent" is composed of two air-to-air, three close-air support, and three interdiction wings. The force for the second contingency would consist of three interdiction and three close-air support wings. The current force structure does not have enough specialized aircraft for these roles (e.g., F-15E for interdiction and A-10 for close-air support). Thus, multi-role aircraft with a primary mission in these areas have been included in the force.

Additional multi-role aircraft are also included in the force structure to provide assets for the defense suppression hunter-killer wings called for in the force. These wings (one active and one reserve) each include one F-4G squadron (shown as SEAD assets in the figure) and two F-16 squadrons (reported as multi-role aircraft in the figure).

Bomber forces include B-1s, B-2s, and B-52s. Half of the B-52s are operated by air reserve units and are assigned a conventional mission. Airlift and mobility capabilities in this alternative are slightly larger than in the base force (about 6 percent more strategic lift aircraft) and rely more on independent reserve units (as distinct from associate reserve units) than the Base Force does.

Analysis

Because the forward presence forces in this alternative are smaller than for the Base Force (consisting of nearly four active wings of fighters), they are supported by a higher ratio of active fighter wings stationed within the CONUS.¹² Thus, this posture would be sustainable, but the presence is nearly three wings smaller than that of the Base Force and would only be consistent with a withdrawal of U.S. overseas military presence and a decrease in its influence abroad.

¹¹Although not specified in Congressman Aspin's written description of the alternatives, details on air refueling and C3I capabilities have been provided by staff members from the House Armed Services Committee.

¹²This stands at 1.9 to 1.7 depending upon whether fighter-like SEAD aircraft are included in the calculations or not. This compares with the Base Force range of 1.4 to 1.3. These ratios take account of, but do not specifically include, other pilot resources within the Air Force, such as those in tactical training units.

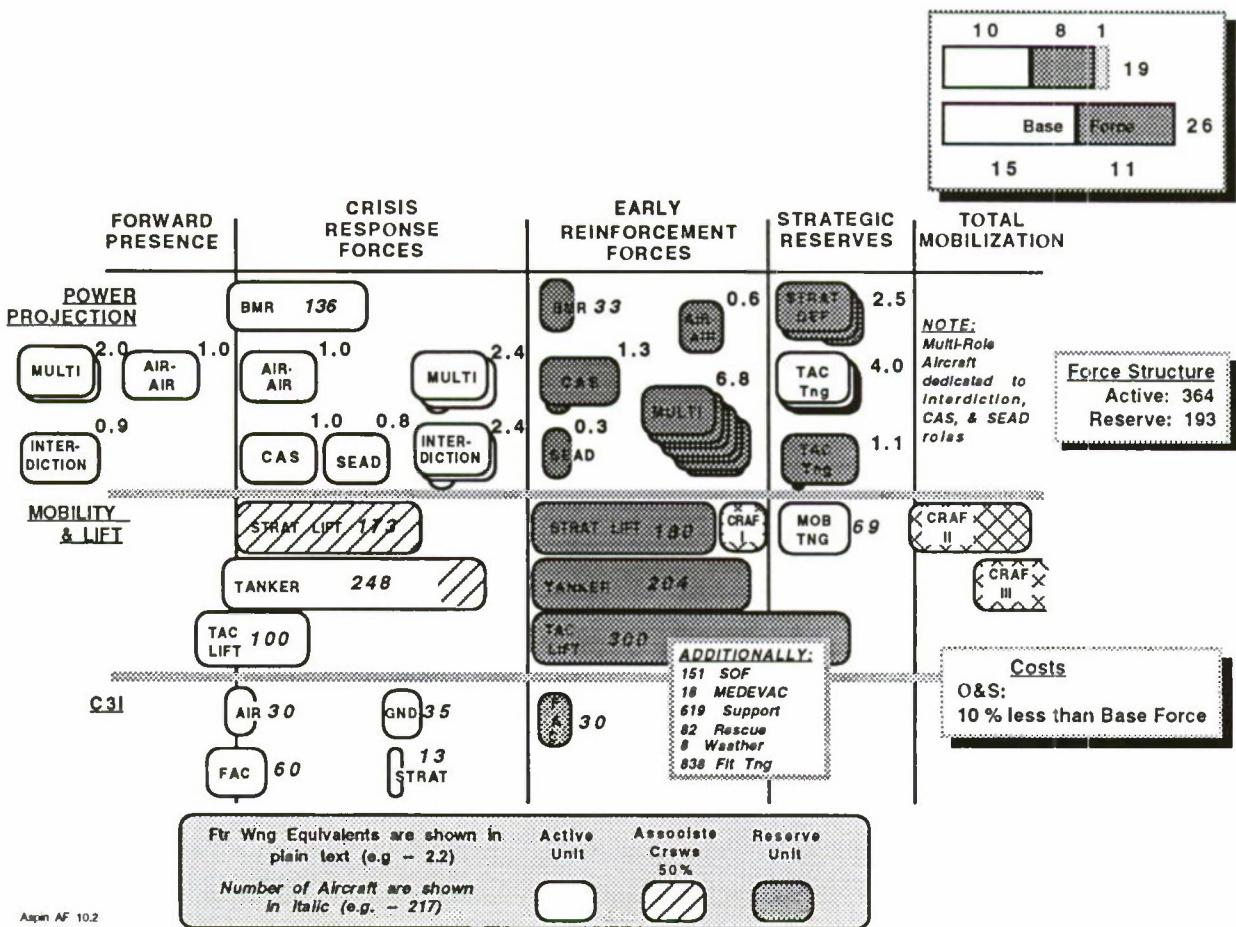


Figure 9.7—Air Force Under Aspin Option "C"

Crisis response forces are capable of providing nearly seven active wings of fighters for the most immediate response to contingencies (including the multi-role aircraft dedicated to the SEAD mission). The early reinforcement reserve forces can provide an additional nine wings for augmentation and rotation (again including the multi-role SEAD aircraft). The force has, however, only a limited degree of specialized air-to-air capability: Even when fully mobilized, it has a little over two wings of these aircraft. And thus, by design, would need to rely on allied air-to-air capability for a second contingency whether or not it occurred in Korea.

Mobility and lift capabilities are greater than for the Base Force: The smaller fighter force is more heavily supported with tanker aircraft than in the Base Force, and there is a slight increase in the total number of strategic airlift aircraft available. Because this alternative relies more on independent reserve units rather than associate units, the *strategic lift* component of the force is

relatively more expensive than in the Base Force or in the other alternatives.¹³ As a result the alternative can afford fewer power projection forces.

Alternative "x"

Alternative "x" is based on results of a study currently being conducted by Project AIR FORCE (the Air Force's federally funded research and development center at RAND).¹⁴ This study has developed a framework and methodology to evaluate the ability of U.S. air forces to meet the national security objectives over the next 20 years. In developing the framework, the project has provided analytical assessments of the effectiveness of the Base Force and other alternatives. The approach it takes is similar to that described in Chapters 5 through 8. The recommendations of the study span a broad range and include such areas as prepositioning and advanced munitions, as well as defining principles for future force structures. These principles include:

- Maintaining an organic airlift capability as capable as or better than currently in the force.
- Leveraging the conventional potential of the bomber force.
- Using current and soon-to-be-deployed C3I systems to create a deployable, dynamic battle control system.
- Providing an adequate interdiction capability for the force.
- Ensuring that force structure can provide the air superiority critical to the success of joint operations.

The study used these principles and the *current type and degree of active/reserve integration* to develop an alternative USAF force structure. This alternative "x" observes the same budget constraints as the Aspin alternative—that is, it

¹³Most active airlift mission costs are covered by industrial funding arrangements using funds from military units whose cargo is being airlifted. Most reserve airlift mission costs cannot be covered because of the out-and-back nature of most reserve airlift training flights, which is necessitated by limited training tours of duty.

This fact results in the counterintuitive result that switching airlift squadrons from the active or associate units to stand-alone reserve units may actually increase funding requirements (as well as the net cost to the government), even though it replaces full-time military personnel with part-time personnel. The cost effect is real, and not just an accounting peculiarity, because the sellable transportation services lost in making the switch would have to be replaced by purchases on the civilian market (assuming that DoD's total air transportation requirements continued to exceed those available through organic airlift operations).

Current policy guidance is provided in AFR 170-24, *Airlift Service, Air force Industrial Fund*, 30 September 1989; for a more detailed discussion see the companion publication, Palmer et al., 1992.

¹⁴Christopher J. Bowie et al., 1992. The research was conducted under the sponsorship of the Vice Chief of Staff, United States Air Force.

is roughly 10 percent less expensive than the Air Force component of the Base Force—but provides for a greater power projection capability.

Description

Figure 9.8 shows the force structure that results. Again, the force is arrayed according to its fundamental functions (forward presence, crisis response, etc.).

Alternative "x" differs from the Base Force primarily in size (20+ wings in contrast to 26 for the Base Force), proportion of the force dedicated to lift (airlift remains at the Base Force level while the rest of the force decreases), and the fighter-to-tanker ratio (3.0 to 1 vice 3.5 to 1). Also, the bomber forces in this alternative are smaller than in the Base Force (under 170 aircraft in contrast to over 210).

This force structure differs from the Aspin alternative in that it does not include as many older attack aircraft (A-10s), does include more air-to-air capability, and relies more on associate units, rather than stand-alone reserve units, in the strategic lift portion of the mobility/lift mission.

Analysis

Again the smaller forward presence force in this alternative (consisting of nearly five active wings of fighters) is supported by a somewhat higher ratio of active fighter wings stationed within the CONUS than in the Base Force.¹⁵ Thus, this posture should also be sustainable. This force is about two wings smaller than that provided by the Base Force. The crisis response contingent of the power projection forces consists of eight active wings of fighter aircraft and nearly 170 bombers, but it is very limited in specialized close-air support (CAS) and forward-air controller (FAC) aircraft. The early reinforcement contingent of the power projection forces consists of nearly eight reserve fighter wings, mostly of the multi-role type.

¹⁵This ratio stands at 1.7 to 1.6 depending upon whether fighter-like SEAD aircraft are included in the calculations or not and compares with the Base Force range of 1.4 to 1.3.

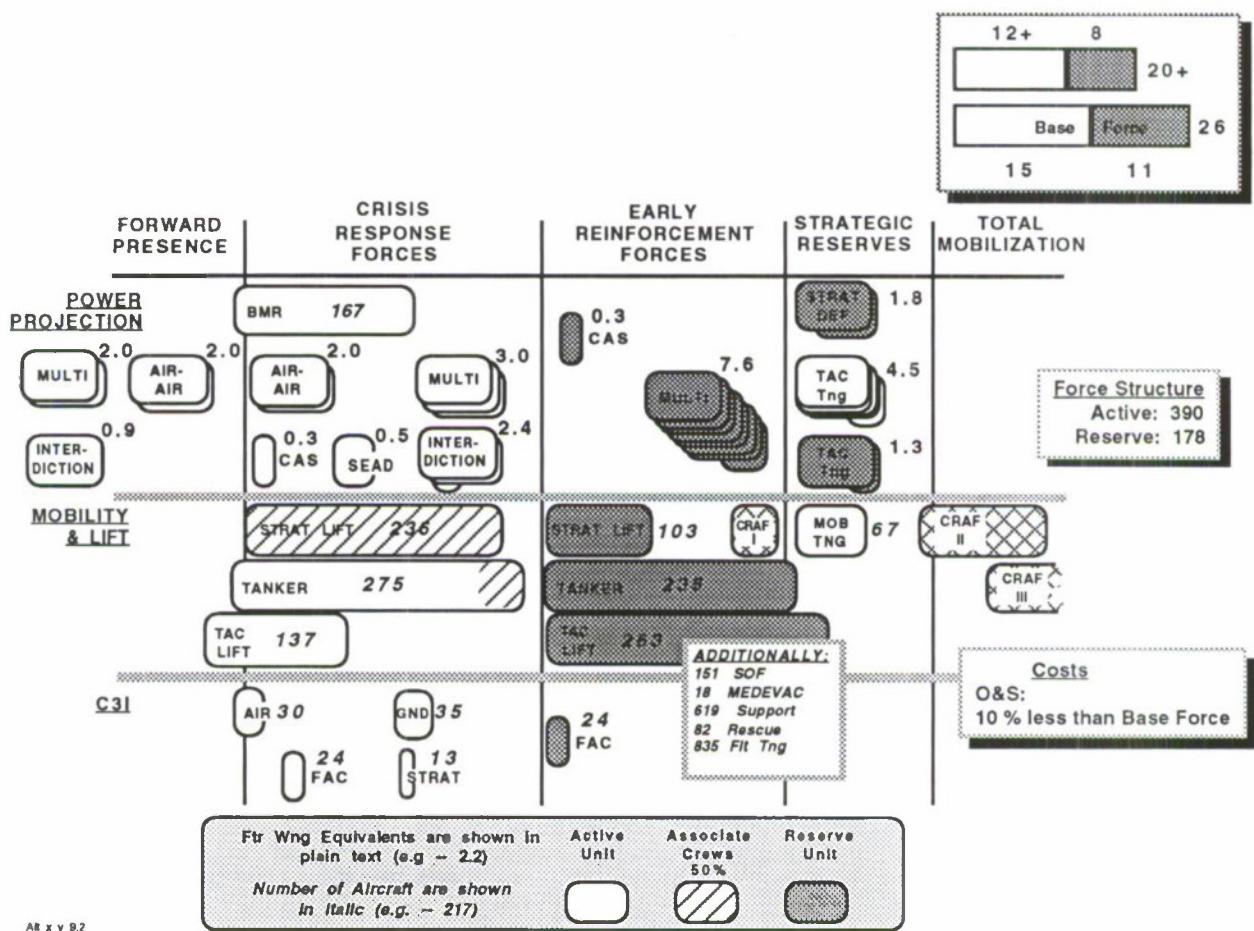


Figure 9.8—Air Force Under Alternative “x”

Mobility and lift capabilities are similar to the Base Force for strategic lift assets and provide a better fighter-to-tanker ratio than found in the Base Force. C3I forces are essentially as capable as those of the Base Force, except that there is only one active squadron and one reserve squadron of specialized FAC aircraft in the force.

Alternative “y”

Because of the limited power projection capabilities of both the Aspin alternative and Alternative “x,” the study team worked to apply the more robust and effective of the reserve integration approaches that were developed in Chapter 5, in a way that could more fully satisfy the principles underpinning Alternative “x.” This allows the alternative to compensate for the limitations

faced by lower-budget level forces by providing a more robust interdiction and multi-role capability, despite a smaller overall force size.¹⁶

Alternative "y" relies on the associate concept for savings in selected parts of the crisis response force (bombers and tankers as well as multi-role and air-to-air fighters) in order to provide enhanced power projection capabilities in other parts. These enhancements are multiple: first, by increasing air and ground crew manning levels for interdiction units in the forward presence and crisis response forces, this alternative increases the capability of these battle-decisive units to conduct intensive round-the-clock operations. Next, the alternative adds flexible, multi-role capabilities to the crisis response and early reinforcement forces by adding two fighter wings to the force structure. Finally, C3I air and ground crews who manage air-to-air and air-to-ground operations have been augmented with additional reserve associate crews.

Description

Alternative "y" is detailed in Figure 9.9. The crisis response forces in this alternative rely more on the associate-unit concept than the other alternatives do, in several ways. First, the air refueling units use the concept in an active/associate model that is similar to the current Air Force Associate Unit Program for the airlift force—active units are supported by crews from reserve associate units to the extent that approximately 50 percent of the crews in this part of the tanker force are air reservists.¹⁷ Because KC-10 units have already adopted this model, there is no change to these organizations. Bomber active/associate units also have a fifty-fifty mix of active and reserve crews.¹⁸ (The active/associate units are denoted by striped shading in the figure.)

¹⁶Discussions with senior researchers leading the Project AIR FORCE project underpinning Alternative "x" indicate that for the size of the improvement possible in Alternative "y," increases in multi-role force structure and interdiction sortie generation capability would be the most valuable improvements to a smaller force structure. See Bowie et al., *op. cit.*

¹⁷We only describe these models in general terms because the specifics that define how actual units should be organized at the base level must be tailored to the particular circumstances and type of aircraft involved. For example, on an airlift base a single, consolidated associate squadron managing unique reserve personnel, training and administrative matters might be the most effective organization to support several active airlift squadrons by providing them with reserve associate crews. Within a fighter wing however, it may be that a flight of associate crews attached to the active squadron would be best suited to the quickly changing flying schedule usually inherent in fighter training operations. For a more detailed discussion of active/associate and active + associate units see Appendix G.

¹⁸These include the entire bomber force, with the exception of the B-2.

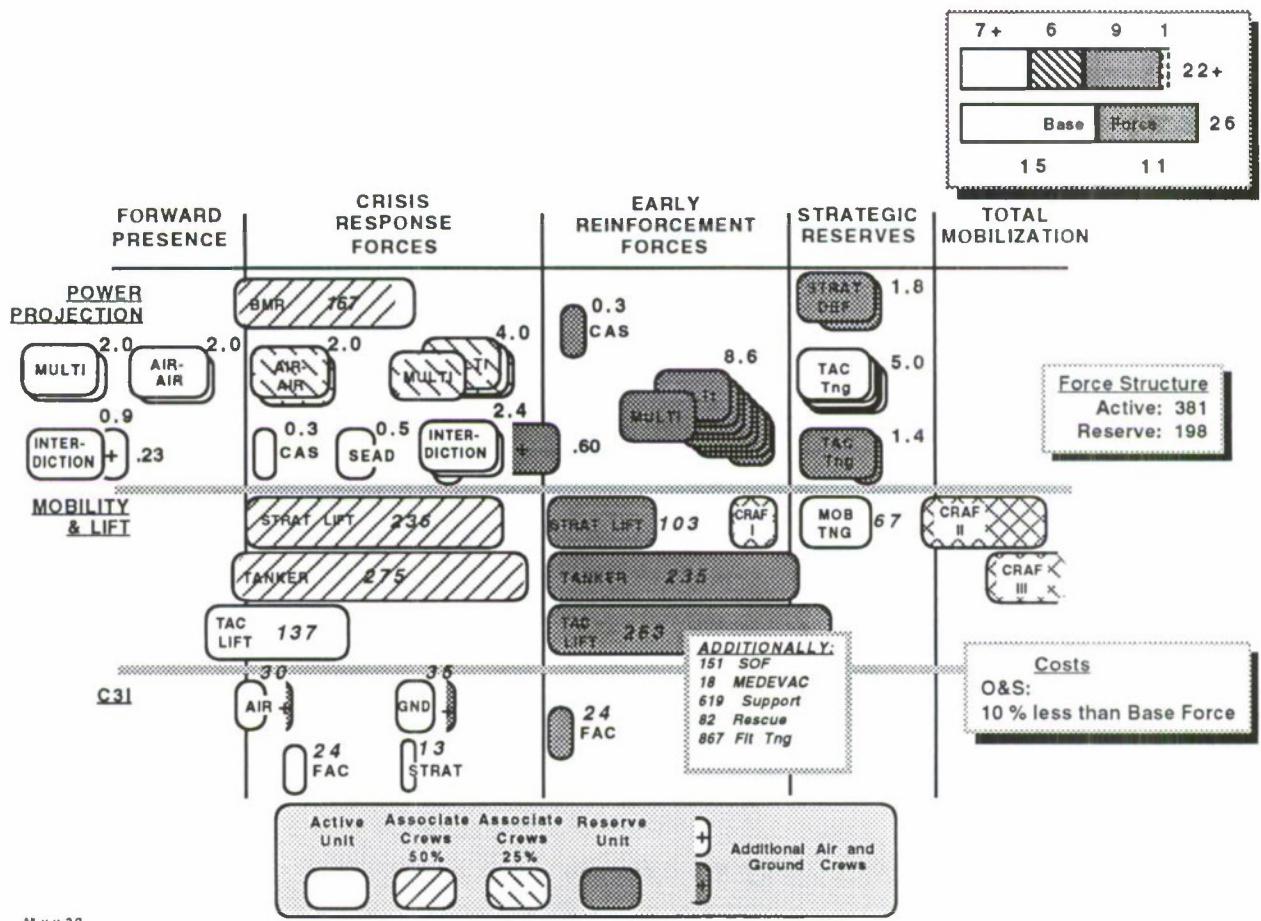


Figure 9.9—Alternative "y"

Selected types of fighters in the crisis response forces also rely on the active/associate model. However, three-quarters of the air and ground crews are active duty members and one-quarter are reservists. The associate crews are not part of the forward presence forces because these forces are located overseas, and the SEAD and CAS assets do not appear to be good candidates for the active/associate model, due to their limited size.

To enhance the flexibility and robustness of this alternative's power projection capabilities, this force structure includes an additional active/associate wing of multi-role fighters in the crisis response forces and another stand-alone reserve wing in the early reinforcement forces. To improve the ability

to conduct intensive round-the-clock interdiction missions,¹⁹ air and ground crews for units flying interdiction aircraft have been increased by 25 percent. For the forward presence forces, this increase must be accomplished with active duty personnel. For the crisis response forces, this alternative relies on the active + associate model in which additional reserve associate crews augment existing active unit manning (this is depicted by the partially open symbols in the figure).

The active + associate model has also been applied to enhance the C3I capability in this force. Since these aircraft are also typically needed round-the-clock to manage the air-to-air and air-to-ground operations, they tend to be limited by air and ground crew manning. To help ease this constraint, additional reserve associate air and ground crews for these units have been added to this force structure to increase their total manning (active and reserve) by 25 percent in these critical specialties.

Analysis

The forward presence capability of Alternative "y" is the largest of the lower budget alternatives and includes the equivalent of over four active wings of tactical fighters. This overseas force is supported by a base of active fighter wings in the United States that is slightly greater than that found in the Base Force.²⁰

The crisis response forces are also larger than other alternatives, providing over eight robust wings of fighters that should provide the number of sorties that nine typically manned wings could provide. This increase in sortie generation capability is concentrated in the interdiction and deep attack mission. This power projection capability includes almost 170 bombers (the same suite as the other alternatives). It is complemented by an increased C3I capability, because of the active + associate augmentation to the C3I units in the crisis response forces.

¹⁹Air Force experience during Operation Desert Storm indicates that the additional crew members deployed to the Persian Gulf were key to the high sortie rates that were sustained during the operation. For example, funded crew ratios for F-111s were 1.10; these were increased to 1.62 for the war. Those for the F-117 were 1.25, and were increased to 1.89. These additional crew members were available because the force at the time was much larger than any of the alternatives under consideration. Smaller force structures may not be able to produce high wartime sortie rates unless they make specific provisions for higher wartime crew ratios.

²⁰The ratio ranges from 1.5 to 1.4 once the reserve crews in the active/associate units have been adjusted for (assuming that they do not contribute to the peacetime rotation base). This compares with the 1.4 to 1.3 range found in the Base Force.

Both the active/associate and active + associate units are expected to be capable of immediate operations or deployment because of their active crew "core." The reserve associate crews can more quickly complement this active duty "core" because they only need to deploy as individuals, and their mobilization preparation does not include preparing their own aircraft for deployment, as would be the case for a stand-alone reserve unit. Thus, the units relying on the associate concept have an availability profile that falls between a stand-alone active unit and a stand-alone reserve unit and are probably very close to the former.²¹

Early reinforcement forces include nearly nine stand-alone reserve wings of mostly multi-role aircraft for augmentation and to provide a wartime rotation base. Alternative "y" has the same limited specialized CAS assets as Alternative "x."

Mobility and lift capabilities for both crisis response and early reinforcement are essentially the same as in Alternative "x"; the primary difference is that "y" relies more on the active/associate model for the tanker force. Tanker support for the fighter force stands at the same three-fighters-per-tanker ratio as in the other lower budget alternatives (an improvement over the Base Force).

Summary

Relying to a greater degree on highly integrated reserve associate units in tanker, bomber, and selected fighter forces can allow modest, but important, increases in the number of wings of both active and reserve multi-role forces, providing needed robustness to the power projection capability of smaller force structures. Such an increased reliance can also provide additional air and ground crews to augment interdiction units, enhancing a key element of the Air Force's power projection capability. It can also provide augmenting crews to the units that provide the C3I capabilities that control both air-to-air and air-to-ground operations. These changes improve the crisis response ability of the force structure, underwriting the growing importance of a quick response capability within the joint force structure.

²¹Active + associate units will use aircraft at a higher rate during peacetime training than an active unit, which can result in an earlier-than-planned need to modernize or replace the aircraft these units fly. Since active/associate units have a lower peacetime usage rate and are more numerous in this alternative, the net effect on modernization needs may be less than for the Base Force and can be determined only by more detailed analysis.

Inherent in the changes are risks: These improvements are possible because of an increase in reserve participation in many missions. This increase in reserve participation does reduce readiness, but because of the high degree of integration that underpins the associate concept, the inherent tailored training the active unit provides, and the operational advantages of this organizational structure, we believe the loss is small in relation to the increase in capabilities it affords. This may not be the case, however. The associate concept has been applied to new parts of the force structure and in new ways to achieve these improvements. Careful assessment, and perhaps testing, would be prudent before deciding whether these organizations actually work as well as our research indicates and before deciding the details of implementation.

In comparison to Army forces, active and reserve Air Force units have only small differences in readiness and capabilities. As a result, it is possible to use the total number of units (fighter wings, for example) as a rough measure of the overall capability of a particular force structure alternative.

Table 9.1 uses this measure to illustrate how the different uses of reserve forces in the alternatives result in differing capabilities.

Table 9.1
SUMMARY OF ALTERNATIVES FOR THE AIR FORCE

	Base Force ¹	Aspin Option "C"	Alternative "x"	Alternative "y"
Cost		10% Less than Base Force	10% Less than Base Force	10% Less than Base Force
	Base Force AC/AC&RC ² /RC	AC/AC&RC ² /RC	AC/AC&RC ² /RC	AC/AC&RC ² /RC
Power Projection				
Fighter Wings	15/0/11	10/0/8 ³	12+/0/8 ⁴	7+/6/9 ⁵
Bombers	217/0/0 ⁶	133/0/33	167/0/0	16/151/0
Mobility/Lift				
Strategic Lift	0/236/103	0/173/180	0/236/103	0/236/103
Tankers	245/57/262	191/57/204	218/57/235	0/275/235
Tactical Lift	154/0/296	100/0/300	137/0/263	137/0/263
C3I	(AC/RC)	(AC/RC)	(AC/RC)	(AC/RC)
Strategic	13/0	13/0	13/0	13/0
Air-Air	30/0	30/0	30/0	30/0 ⁷
Air-Gnd	35/0	35/0	35/0	35/0 ⁷
Forward Air Control	60/30	60/30	24/24	24/24
Personnel	430,300 / 200,000	364,000 / 193,000 ⁸	389,600 / 177,500	380,700 / 197,600
Reserve Models	Stand-alone reserve units	Stand-alone reserve units	Stand-alone reserve units	Stand-alone reserve units
	Air Force Associate Unit Program	Air Force Associate Unit Program	Air Force Associate Unit Program	Air Force Associate Unit Program
				New combined active and reserve units

¹Based on the President's Budget Submission data, January 1992. Forces are measured in Primary Authorized Aircraft (PAA), fighter wings are 72 PAA per wing.

²Combined active and reserve forces such as the active and associate units flying the C-141 under the Air Force's Associate Unit Program and the new units used in Alternative "y."

³Aspin Option "C" totals 19 fighter wings, if the multi-role aircraft dedicated to the defense suppression mission are included in the totals.

⁴The + denotes an additional half wing of aircraft.

⁵Alternative "y" has augmenting air and ground crews for interdiction forces.

⁶The Air National Guard and Air Force Reserve may have a conventional bomber role in the future.

⁷Alternative "y" has augmenting air and ground crews for C3I forces.

⁸Aspin Option "C" has been specified as having the active and reserve mix shown in the table. Cost estimates for this force have been made using the same assumptions and force design factors as were applied to the other alternatives. These imply slightly different personnel counts for this alternative (378,900 active duty members and 191,400 reservists).

10. Developing Alternative Force Structures for the Navy and Marine Corps

Overview

In Chapters 8 and 9, we described the alternative force structures developed for the Army and Air Force, respectively. This chapter describes the alternative force structures for the Navy and the Marine Corps. It is based on work done by the Center for Naval Analyses (CNA) under separate contract with the Office of the Secretary of Defense.¹

Navy Alternatives

Consistent with congressional direction,² CNA considered alternative cases corresponding to three levels of Navy reservists:

- The level included in the FY 1992–1993 congressional authorization (about 142,000 Selected Reservists);
- Levels substantially below 142,000; and
- Levels substantially above 142,000.

CNA generated the alternatives using four different methods:

- Considering already proposed alternatives for future force levels;
- Identifying which tasks are most suited to the reserve;
- Analyzing detailed initiatives for combat and support forces; and
- Considering a requirements-based minimum reserve.

These methods were used to generate seven alternatives to the current active-reserve mix and to the missions assigned to the active and reserve compo-

¹For a more detailed discussion of this work, see Mayer et al., *op. cit.*

²National Defense Authorization Act for Fiscal Years 1992 and 1993, *op. cit.*, pp. 62–64.

nents. One goal in looking at these different candidates and their implications for cost and effectiveness is to get an idea of things the reserve can do well and things it cannot. A study such as this cannot cover all conceivable proposals; the intention is to provide enough examples so that it becomes clear what types of proposals might work and what types would not.

FY 1992–1993 Authorization-Level Alternative

This alternative is based on the administration's Base Force. It takes that proposal's Selected Reserve force of about 118,000 and raises it to about 142,000. Thus, it reflects the force level authorized by Congress in 1992 for the 1993 force. The result is a reserve force structure equivalent to the 1992 reserve structure, but an active structure equivalent to the administration's Base Force level.

Alternatives Below the 142,000 Level

For alternatives below the 142,000 level, CNA used two of the current major proposals for future force levels: the administration's Base Force and the Aspin alternatives, issued by the Chairman of the House Armed Services Committee. Of the Aspin alternatives, the one most commonly discussed is Option "C," which RAND also used to generate Army and Air Force alternatives.

Base Force. The Base Force contains about 450 ships; the Aspin Option "C" alternative, about 340 ships (Table 10.1). Aside from a difference of one aircraft carrier, the significant differences are in attack submarines (SSNs) and surface combatants (mostly frigates)—forces usually associated with sea control and protection of shipping in a global war scenario.

Reserve Combat Alternative. Table 10.1 also describes a third alternative—the reserve combat alternative (RCA)—whose purpose is to investigate the implication of an increased combat capability in the reserves. In this alternative, CNA assigned the difference (from Aspin's Option "C" and the Base Force) of 50 surface combatants (FFG-7 frigates) and 40 SSNs to the Naval Reserve Fleet (NRF) rather than decommissioning and disposing of them. The frigates are appropriate ships for reserve forces: They have a limited mission (protection of shipping), do not require a large crew, and have fewer complex combat systems than other Navy surface combatants.

Table 10.1
THREE FORCE ALTERNATIVES

Ship Types	Base Force	Aspin's Option "C"	Reserve Combat Alternative
Carriers	12	11	11
Submarines	80	40	40 + (40) ^a
Surface combatants	150	100	100 + (50)
Large amphibs	10	10	10
Other amphibs	40	40	40
Mine CM	30	30	30
AOE/AOR	10	11	11
Other CLF	40	39	39
Support	35	41	41
Trident SSBNs	18	18	18
16 NRF FFGs	16	—	—
Totals	441	340	340 + (90)
Active manpower	501K	432K	441K
Selected Reservist billets	118K	112K	118K
Active/reserve air wings	11/2	10/2	10/2

^aPutting the difference of 40 in the reserve was considered, but, as discussed below, CNA determined that it would make more sense for them to be in defueled layup.

This alternative considers other ways to man and base these ships. As shown in Figure 10.1, these ships would be manned using a paired-ship concept under which each ship has active manning for about 45 percent of its wartime billets. The billets assigned to the active personnel on one ship are assigned to Selected Reservists on the other ship of the pair, and vice versa; hence, the full manning of one ship is the exact opposite of that of the sister ship. From each pair, one ship can be made available quickly by combining the complementary active halves.

The paired-ship concept offers advantages over decommissioning one of the ships and keeping the other in the active force. In addition to providing a more rapid two-ship capability for crisis response, the paired-ship concept promotes a close association between the active and reserve portions of the crew, an association similar to that in Army roundout units. The reservist has a chance to work closely with members of the active component, and the active personnel have an incentive to do a good job providing whatever training the reservists need. Under this concept, however, the frigates could not be a regular fleet asset. Rather, they would be reserve assets available to supplement the active fleet in the event of a prolonged crisis or two or more simultaneous crises. During peacetime, the underway operations of these ships would focus on basic training of the full crew—a significant change from how the Navy currently uses NRF ships. It would probably require major changes in the training and inspection requirements and a revision to

the maintenance frequencies that NRF ships must currently meet. A useful starting point for such an initiative would be a test involving a few FFG-7s. Such a test could assign eight frigates currently in the active force to be homeported together, manned at the 45 percent level with full-time personnel and 45 percent with Selected Reservists. A two-year test would be crucial in determining the answer to issues such as maintenance and readiness.

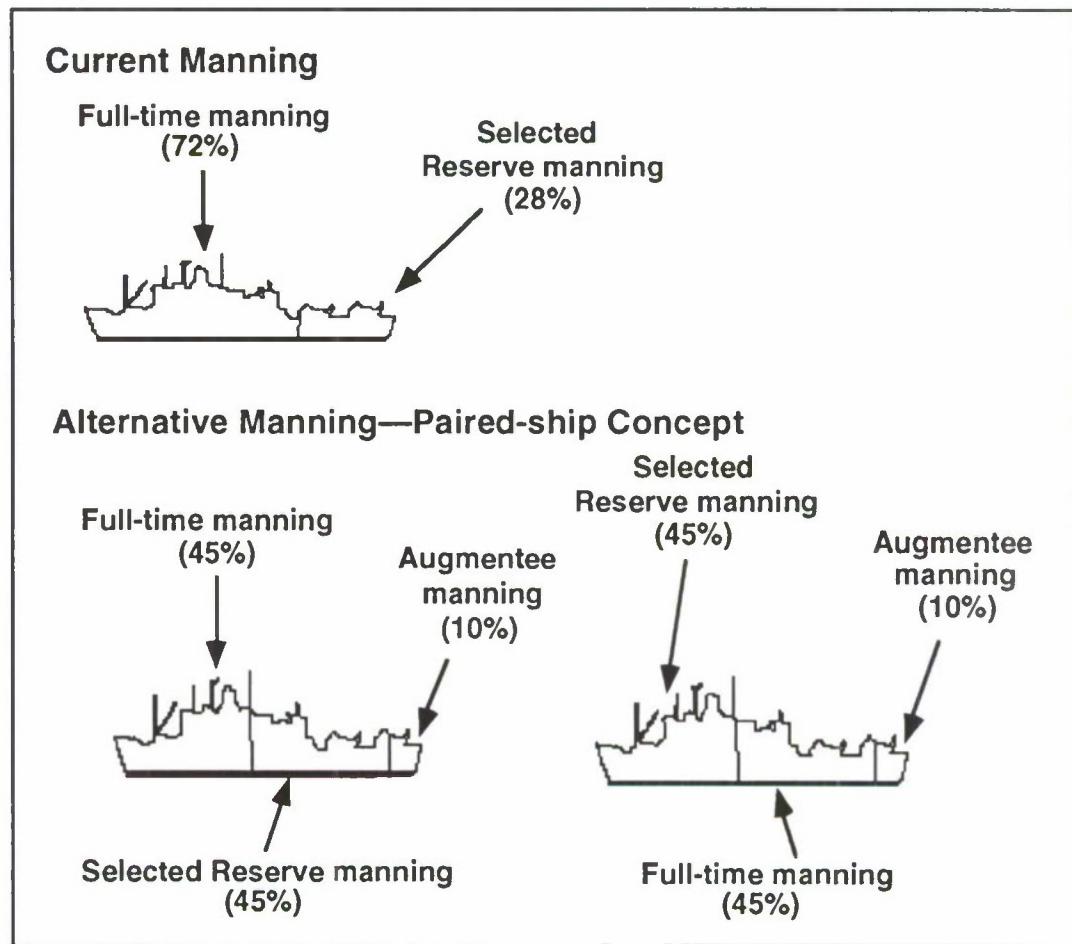


Figure 10.1—Manning and Operating FFG-7s in the NRF

CNA also examined the option of putting submarines in the reserve forces. They concluded that submarines could be put in reserve forces if desired, but, because of safety and training restrictions, they would require full-time manning by 80 to 90 percent of a full crew. As a result, the savings would be minimal. Thus, they excluded this option. If some submarines were not needed for peacetime deployment missions, it would be more cost-effective

to put them in a defueled layup, with a small team of people taking care of maintenance and safety. Another alternative is to lay up newly constructed submarines before they are fueled. In this way, they would still be available for reconstitution.

Aspin Option "C" with Minimum Reserve. One requirement for this study was to consider a reserve smaller than the reference case. Therefore, as one alternative, CNA tried to identify the smallest reserve that could still fulfill its role, as extrapolated from the Persian Gulf War. This minimum reserve does not include the possibility (discussed above) that reservists could substitute for active personnel in some mission areas, particularly in shore-based support.

If the Persian Gulf War is taken as an example of a major regional contingency (MRC), and if planning is directed toward two nearly simultaneous MRCs, a minimum reserve would be roughly twice the size of the Persian Gulf War recall. This approach, however, would not take into account the fact that the Persian Gulf War may have been unique. Also, the Persian Gulf area already had a large infrastructure to support combat forces; a crisis in another area may require more reservists for the support missions. Even when an adjustment is made for the possibility of harsher conditions, however, the resulting reserve would be substantially smaller than currently authorized. It is useful to consider why.

The major reason for the size difference is the recent change in the assumptions that underpin Navy planning: former scenarios assumed that the Navy would be fighting a global war with the Soviet Union. With the demise of the Soviet Union and the Warsaw Pact, regional conflicts (such as the Persian Gulf War) are the scenarios likely to involve U.S. forces. By extrapolating the Persian Gulf War experience to two MRCs, CNA generated the figures in Table 10.2. Case 1 assumes that the numbers and types of Selected Reservists recalled for the Persian Gulf War represent reasonable planning factors for future MRCs. Case 2 reflects the harsher combat conditions and inferior infrastructure that might be encountered in future MRCs. For Case 2, the number of Selected Reservists associated with fleet hospitals, medical augmentation units, cargo handling, construction, and logistics is increased by 50 percent in each theater over the numbers observed in the Persian Gulf War.

In the CNA opinion, Case 2 is the more prudent base for planning, given the peculiarities of the Persian Gulf War. This was added to the active force of Aspin's Option "C" to develop this alternative. The totals of Selected

Reservists include full-time reservists called TARs (Training and Administration of the Reserves) in about the current percentages.

Table 10.2
EXTRAPOLATION OF REQUIREMENTS TO TWO MRCs

Types of Units	Persian Gulf War	Two Concurrent MRCs		FY 1990 End-Strength
		Case 1	Case 2	
Power projection	6,003 ^a	12,006	16,598	28,354
POS ^b units	0	0	0	9,829
Support	1,697	3,394	4,086	13,116
Augmentation	12,192	24,384	34,794	77,500
Miscellaneous ^c	1,191	1,191	1,191	—
Total	21,083	40,975	56,669	128,799
Incl. TARs	24,000 ^d	47,000 ^d	65,000 ^d	149,000

^aIncludes MCM and MIUW personnel.

^bProtection of ocean shipping. The 442 POS personnel have been included with power projection in this table to reflect the way they were actually used.

^cIncluded in Case 1 and Case 2 to make totals comparable with Persian Gulf War total.

^dNumber of TARs estimated at 15 percent of number of Selected Reservists.

Alternatives Above the 142,000 Level

After looking at alternatives that reduce the size of the Naval Reserve, CNA developed alternatives that increased the number of reservists. Each of the following alternatives increases the size of the reserve relative to the FY 1992–1993 force. It should be noted, however, that CNA's analysis indicates that these increases are not necessary to execute any of the anticipated scenarios. Indeed, if reserves are added to any of the areas that they identified in the analysis as appropriate for increased numbers of reserves, these increases could be accommodated by decreases in areas where large numbers of reserves are no longer appropriate. Because the law directing this study required alternatives with an increased number of reserves, they added the numbers generated by the following alternatives to the FY 1992–1993 authorization level.

Increased Reserve Support Forces Alternative. For a reserve capability to be effective, equipment, personnel, and a structure for training must be in place. But there will not be a payoff unless the mission is one that the reserve can be expected to perform.

For this alternative, CNA added reservists to various categories of Navy capability. They did not add them to categories for which recruiting is difficult or to categories for which growth would cause difficulties in recruiting.

When they added reservists to a category, they reduced the number of active personnel to keep the cost constant. Based on 1991 data, this alternative adds almost 20,000 reserve billets and reduces the number of active billets by about 3,000. The largest additions are to three groups that appear to meet the criteria for a substantially larger reserve presence:

- Personnel support,
- Force support training, and
- Individual training.

To identify the areas in which the reserve might have the highest payoff, CNA used a checklist method. The results are not meant to pinpoint detailed proposals for increased use of the reserve. They are meant to indicate the portions of the Navy in which an increased reserve would make sense. If the initiatives indicated by CNA's checklist were adopted, the specifics could be worked out by the gaining commands.

Figure 10.2 shows the CNA approach. The different categories are listed down the side. Across the top are various criteria that indicate suitability for

PRELIMINARY CRITERIA					
Examples of categories	Shore-rotation billets	Used In ODS/S	Continuous/Intermittent/schedulable	Recruiting base	
CV					
CVW	PRELIMINARY CRITERIA				
SSN	Examples of categories	Costs	Skills retained/relearned quickly or uses civilian skill	Low reserve share	Individual skills
FF					
FRS	PRELIMINARY CRITERIA				
CV	PRELIMINARY CRITERIA				
BOS	CVW	Examples of categories	May require augmentation	Forward deploying	Needed immediately in a contingency
MED	SSN	FF			Reserves available rapidly
	FRS	CV			
	BOS	CVW			
	MED	SSN			
		FF			
		FRS			
		BOS			
		MED			

Figure 10.2—Checklist for Selecting Appropriate Reserve Mission Expansion

a major reserve presence. The following criteria do appear to indicate whether a particular category is a good candidate for increased reserve billets:

- Whether reservists used in this category would have to be routinely assigned to a forward-deployed unit, which would argue against this being a reserve mission.
- Whether there is strong evidence that expansion in the category is needed in time of war, which would argue in favor of the category being a reserve mission. If the reserve capability seems to have made an important contribution in the Persian Gulf War in a particular category, this was interpreted as strong evidence that expansion was needed in time of war.
- Whether tasks in the category are either schedulable or intermittent (as opposed to continuous), which would argue in favor of this category being a reserve mission. As an example, routine medical care involves schedulable tasks. Tasks with peakloads, such as training and intermediate maintenance, are intermittent.
- Whether the reserve appears underrepresented in the category. To define "underrepresented," CNA calculated the average share for the first three categories. Underrepresented was interpreted as having a share below the group average.

Increased Reserve Base Force Plus Specific Initiatives Alternative. Table 10.3 lists the specific initiatives that were examined in detail in the study and are so described in the full CNA report. CNA judged all of these initiatives to be appropriate for implementation, based on the wartime requirement for forces as specified in the planning scenarios. Accepting all of these initiatives and increasing the reserve force structure to accommodate them is the basis of this alternative.

Several broad findings emerged from the CNA study of these specific initiatives. First, for any combat capability, timeliness is an issue. If the capability is needed routinely in peacetime, it needs to be in the active component. If the capability is not needed quickly—or is needed only for a rebuilt (reconstituted) threat with years of warning—less expensive options than using Selected Reservists are available. For example, the ships and aircraft can be deactivated and manning drawn when needed from the IRR.

Second, manning is an issue. Currently, for example, NRF FFG-7s are manned with about 70 percent active personnel (regulars and TARs). The

Table 10.3
FORCE ALTERNATIVES

Alternative	Description
Base Force	Includes 450 ships (including 12 aircraft carriers, 150 surface combatants, and 80 submarines), 11 active air wings, 2 reserve air wings, about 500,000 active component personnel, and about 118,000 Selected Reservists.
Aspin Option "C"	Includes 340 ships (11 aircraft carriers, 100 surface combatants, 40 submarines), 10 active air wings, 2 reserve air wings, 432,000 active component personnel, and about 112,000 Selected Reservists.
Reserve combat	Increases the number of surface combatants in the Aspin alternative to 150 by adding 50 frigates to the NRF and retains 50 laidup SSNs.
Increased reserve base force (IRBF)	The same as the administration's Base Force except that the number of Selected Reservists is increased to about 142,000—the level originally authorized by Congress in 1992 for 1993.
Increased reserve support forces	Has almost 20,000 more reservists than the IRBF (above). These reservists are concentrated in personnel support, force support training, and individual training.
Increased reserve base plus specific initiatives	<p>Adds the following initiatives to the IRBF:</p> <p>Has fewer maritime patrol squadrons to achieve a force structure of 11 active/11 reserve.</p> <p>Places all FFG-7 ships in NRF in paired-ship program (if the test of the concept is successful).</p> <p>Transfers 7 MCM-1 ships to reserve to make 7 active/7 reserve; establishes paired MHC-51 and MCM-1 NRF programs (ROS 90 days).</p> <p>Forms 3 reserve AMCM squadrons, so capability is split roughly 50/50 active/reserve.</p> <p>Establishes 18 amphibious ship RRF (ROS 75 days) from retiring ships.</p> <p>Mans hospital ship medical treatment facilities 50 percent with Selected Reservists, and transfers 3 active fleet hospitals to reserve and eliminates remaining active fleet hospitals.</p> <p>Creates mobile reserve logistic task forces to coordinate theater logistics.</p> <p>Creates STREAM and VertRep teams and MILDETS for CLF ships.</p> <p>Establishes an SSN reconstitution force in decommissioned status—about 15 SSNs by 1999.</p>
Aspin Option "C" plus a minimum reserve	Has about 65,000 Selected Reservists. Emphasizes medical, logistics, and augmentation. Uses the Aspin Option "C" active force.

purpose is to enable these ships to deploy for a continuous period of up to six weeks, although typically they are not required to make such an extended deployment. At the other end of the spectrum, manning of about 30 to 40 percent should be sufficient for very briefly putting the ship to sea to avoid storm damage. The lower limit on full-time manning may be driven by maintenance requirements.

Third, recruiting and retention can be important constraints. To avoid large initial investments in training, the Naval Reserve tries to access Selected Reservists with prior service. Several studies in the mid-1980s³ concluded that it would be difficult to recruit and retain enough Selected Reserve and TAR veterans to man an expanded NRF in the particular sites under consideration. Interviews suggested to us that these difficulties would again become very important if the Navy attempted to greatly expand the NRF. The Navy has had much greater success in filling aircraft squadron billets.

A fourth finding is that some initiatives can be generated from ideas developed during the Persian Gulf War or other operations. Three support initiatives fit this type: manning 50 percent of hospital ship medical treatment facilities with Naval Reservists, creating crisis response logistics task forces (for in-theater administration and control of logistics), and creating teams of Selected Reservists to help transfer supplies from logistics support ships to combat ships.

Marine Corps

Developing alternative force structures for the Marine Corps was a two-stage process. In the first stage, CNA considered all "reasonable" variations in active and reserve forces. In the second stage, they eliminated alternatives that seemed unlikely.

Because the Marine expeditionary force (MEF) is the Marine Corps' basic warfighting organization, CNA adopted it as the means of depicting alternative force structures. They present all alternatives in terms of their number of active and reserve MEFs; for example, the 2/1 alternative contains 2 active and 1 reserve MEF. The "standard" MEF is the baseline MEF defined by the

³H. Dwight Lyons, Jr., and John D. Goetke, *USMC Active and Reserve Force Structure and Mix Study, Volume IV: Analysis of Alternative Force Structures and Mixes*, CNA Research Memorandum 92-161, forthcoming. William H. Sims, *USMC Active and Reserve Force Structure and Mix Study, Volume III: Development of Alternative Structures and Estimates of Training Times*, CNA Research Memorandum 92-185, forthcoming. Conversations with staff officers at MARRESFOR, June 1992.

Marine Corps' Force Structure Planning Group (FSPG).⁴ At its wartime table-of-organization strength, it has about 40,500 Marines. For each of the alternative force structures, it lists the number of full, wartime-strength MEFs. That is, if an alternative has 2 active MEFs, it means that the Fleet Marine Force (FMF) has $2 \times 40,500$ or 81,000 Marines. Similarly, if that alternative has 1 reserve MEF, CNA means that the Selected Marine Corp Reserve (SMCR) units contain about 40,500 Marines.

Determining Alternatives

In designing alternative force structures, CNA's intent was to be comprehensive but to keep the alternatives within a range that reflected historical reality and projected national needs. The methodology used can be summarized as follows:

- First, CNA selected the range of total force. They set the upper bound at 4 MEFs, which was nominally the Marine Corps total force structure circa 1990. They set the lower bound at 2.5 MEFs, which was the size of force that deployed to the Persian Gulf during ODS/S.
- Second, CNA bounded the size of the active force. They set the upper bound at 3 MEFs—the nominal active structure circa 1990. They set the lower bound at 1 MEF—the size force needed to maintain a rotation base for two Marine expeditionary units (MEUs).
- Third, CNA varied the active and reserve force structure in 0.5 MEF increments. They chose 0.5 MEF because it would make a real difference in warfighting capability. A 0.5 MEF change includes a full Marine expeditionary brigade (MEB) plus a personnel pipeline for other considerations, such as administration and geographic distribution of forces.

Applying this method resulted in 19 different alternative force structures. CNA then added two other alternatives: the DoD Base Force and an alternative that costs the same but keeps the SMCR at the level authorized in FY 1992–1993. Table 10.4 lists these 21 alternatives.

⁴The FSPG was formed to develop the Marine Corps structure for the DoD Base Force. The group also determined the minimum additional structure (the "buyback") needed to allow the corps to fulfill all its assigned missions. A similar group, the Reserve Force Structure Planning Group (RFSPG), was created to develop an SMCR structure for the DoD Base Force.

Table 10.4
ORIGINAL ACTIVE/RESERVE MEF FORCE MIXES

4 MEFs	3.5 MEFs	3 MEFs	2.5 MEFs
3/1	3/0.5	3/0	2.5/0
2.5/1.5	2.5/1	2.5/0.5	2/0.5
2/2	2/1.5	2.2/0.8 ^a	1.5/1
1.5/2.5	1.5/2	2.1/1 ^b	1/1.5
1/3		1/2.5	2/1
		1.5/1.5	
		1/2	

^aThis alternative is the DoD Base Force.

^bThis alternative was constructed to cost the same as the DoD Base Force but keep the SMCR at the level authorized in the FY 1992–1993 authorization act.

Selecting Alternatives

To select alternatives for detailed analysis, CNA used the following three assumptions as rules of thumb to eliminate some alternatives from further consideration:

- There will be an SMCR. They saw no need in any aspect of CNA's analysis to eliminate SMCR forces entirely. This rule eliminated two alternatives.
- Active forces will be no larger than the FSPG "buyback" (about 2.5 MEFs). The Marines feel that such a force, although constrained, could meet future commitments. This rule eliminated two more alternatives.
- The SMCR will be no larger than the active force. The Marine Corps is a force in readiness, not a force in reserve. Furthermore, no other Service has more reserve than active forces. This rule eliminated six alternatives.

The study had to consider three alternative force structures. The first of these was the DoD Base Force. This force has been developed in detail by the FSPG and RFSPG. In CNA's notation, the DoD Base Force has 2.2 active and 0.8 reserve MEFs. They called the second alternative the "Congressional Base Case." This alternative maintains the SMCR at the level authorized for FY 1993 (42,400 in the SMCR) and compensates by reducing active structure so that total cost is the same as the DoD Base Force. The Congressional Base Case has 2.1 active and 1 reserve MEFs. The third alternative was Congressman Aspin's Option "C," which has 2 active and 1 reserve MEFs.

These three alternatives do not differ significantly: all have about 2 active MEFs, and all have a total force of about 3 MEFs. In fact, when they developed detailed structures for the Congressional Base Case and Representative

Aspin's Option "C," they were so alike that they did not consider them separately. The Congressional Base Case had a slightly larger active force but provided no significant increase in capability over Option "C." The additional active force did not allow more rotation, did not affect response time to future contingencies, and did not affect CNA's qualitative assessment of reserve force sustainability; all it did was cost the same as the DoD Base Force. Because of this, CNA adopted Option "C" (the 2/1 alternative) as a "surrogate" Congressional Base Case, even though Option "C" costs less than the DoD Base Force.

Table 10.5 lists the ten remaining alternatives. For each alternative, CNA developed a detailed force structure for evaluation.⁵

Table 10.5
ACTIVE/RESERVE FORCE MIX ALTERNATIVES REMAINING
FOR DETAILED ANALYSIS

4 MEFs	3.5 MEFs	3 MEFs	2.5 MEFs
2.5/1.5	2.5/1	2.5/0.5	2/0.5
2/2	2/1.5	2.2/0.8	1.5/1
		2/1	
		1.5/1.5	

⁵Lyons and Goetke, *op. cit.*

Section IV

Evaluating Alternatives

11. Comparison and Assessment of Alternatives: Army and Air Force

Overview of Assessment Section

In the preceding section of the report, we discussed the defining characteristics of alternative force structures, described the military requirements that they had to meet and their ability to meet that demand, and presented the alternative force structures developed for the Army, Air Force, Navy, and Marine Corps. In this section, we compare the cost-effectiveness and personnel sustainability of those alternatives. NDRI staff conducted the comparison of Army and Air Force alternatives described in this chapter and the analysis of personnel sustainability in Chapter 13. CNA staff conducted the comparison of Navy and Marine Corps alternatives in Chapter 12.

Army Alternatives

As we noted at the outset of this report, the Department of Defense's policy is to "support military contingencies with Guard and Reserve units and manpower when they can be available and ready within planned deployment schedules on a cost effective basis." Many in Congress have expressed the view that the Army should be structured to provide the possibility for reserve combat units to participate in a Major Regional Contingency (MRC) if it ever becomes necessary to employ the nation's combat power. In this chapter, we compare the Army alternatives in terms of costs, their overall size, their ability to generate fully trained maneuver brigades, and a scorecard that highlights military effectiveness. A more complete classified discussion is in the companion report.¹ Air Force alternatives are also compared in terms of cost and capabilities.

¹See *Assessing the Structure and Mix of Future Active and Reserve Mixes: Final Report to the Secretary of Defense : Annex, op. cit.*

The Army alternatives are summarized in Figure 11.1. As noted in Chapter 8, we considered five alternatives at the current budget level and two at a reduced budget level.

Given the training time estimates discussed in Chapter 7, we found that the DoD Base Force and other alternatives relying on current training and integration of reserves either could not deploy fully trained reserve combat forces in the *required* time, did not adequately provide for the training of later mobilized reserve forces, or reduced the size of the reserves to a level judged to be politically unacceptable.

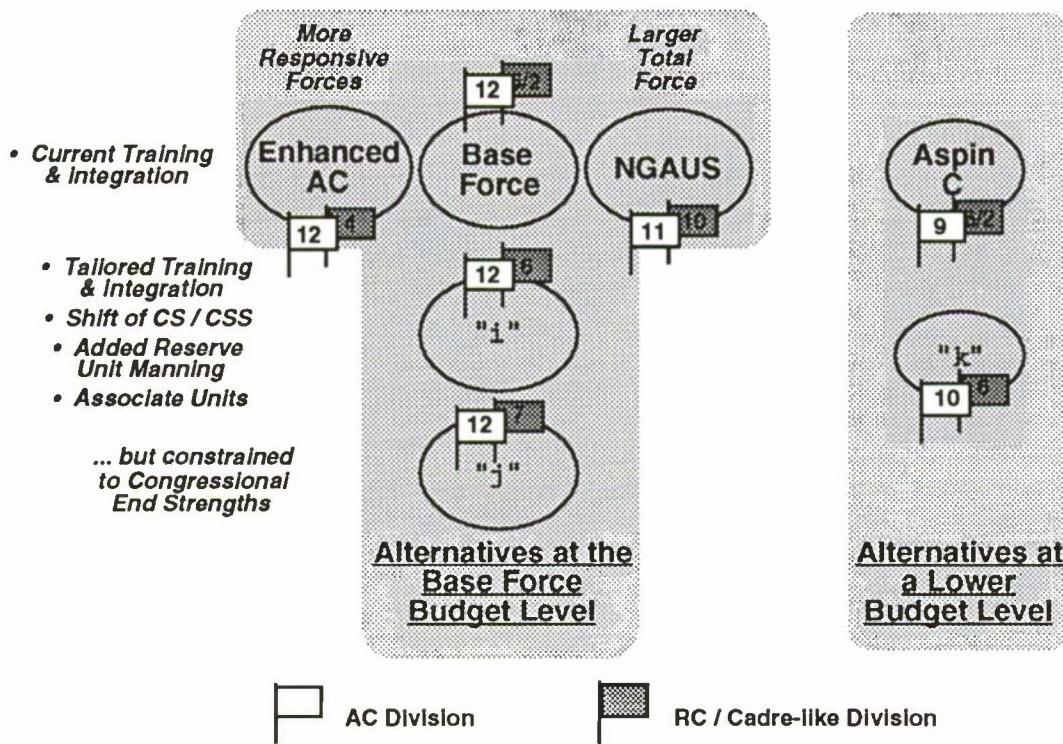


Figure 11.1—Army Force Structure Alternatives for Final Assessment

Alternative "i" incorporated a number of changes that, taken together, provided an *equal cost* alternative to the Base Force, but addressed the above concerns. The Alternative "j" force meets the 1993 end-strength goals this study was charged to assess, while using as many of these changes as possible.

At a reduced budget level we considered the recent proposal by Congressman Aspin, Chairman of the House Armed Services Committee,

(Aspin "C") and an Alternative ("k") that incorporated some of the features of Alternative "i."

Operations and Support (O&S) Costs

Figure 11.2 shows the long-term recurring, or steady-state, costs of each alternative.² We refer to these costs as operations and support (O&S) costs for convenience. To allow a clear comparison of capabilities, each alternative has been designed so that its costs are essentially the same as for other alternatives at its budget level.

These cost estimates include direct O&S, variable indirect O&S, and annualized equipment replacement costs.³ They reflect only a part of the Army's overall O&S budget—that related to force structure changes. Additional "fixed" O&S costs amount to approximately 20 billion dollars each year, resulting in an annual Army O&S budget of nearly \$50 billion.

The costs attributed to the reserve components are those directly associated with their force structure and do not include the costs for active component support for the reserves, even if that support is a full-time mission. While such indirect costs for reserve forces are included in the overall cost for each alternative, they are attributed to the active component insofar as the specific units providing this support are composed of active component resources. Thus, the costs of the active duty trainer commands included in Alternatives "i" and "k" for post-mobilization training of the reserves are counted against the active component, rather than attributed as a cost of the reserves. Assigning such costs is necessarily arbitrary; as a result, the study assesses and compares entire force structures to ensure that all costs necessary to make an alternative work, whether attributable to the active component or reserve component, are included.

²These costs could be thought of as the yearly demands on resources that will be made by each alternative once the current force (the force structure that exists in 1992) has been reconfigured. Such costs are directly related to the policy decision to adopt a particular force structure; they do not include those costs associated with other related policy choices such as the level of research and development spending or the rate of force modernization.

³The issue of direct and indirect costs, as well as fixed and variable costs, is discussed in the companion report by Adele Palmer, et al.

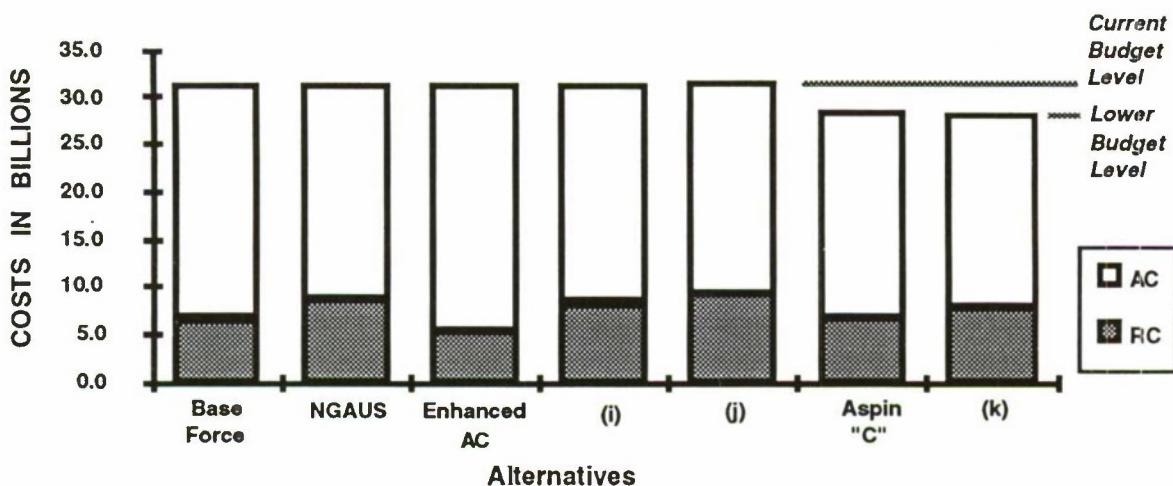


Figure 11.2—Active Component and Reserve Component O&S Costs for Army Alternatives

Implementation Costs

While long-run steady-state costs do provide a basis for even-handedly comparing the capabilities that alternatives can provide in the future, they do not provide any insights into cost problems that different alternatives might pose in the near term. It is important to understand if unusual resource demands are posed by different alternatives in the near term, because programmed defense spending cuts leave little latitude for adjustment.

To assess such implementation costs, however, a different approach to cost estimation is required: Rather than estimate the steady-state costs of the alternatives, we must dynamically model the costs over time. Such modeling is necessary because of yearly differences in the training load, one time moves of personnel and equipment to implement the drawdown and force realignment, and reassessments of modern equipment as active units stand down.⁴

The results of our dynamic cost modeling are shown in Figure 11.3. They show that even with the unique changes reflected in each alternative, the differences among alternatives are small compared with the effect of the draw-

⁴The cost methodology necessary to make these dynamic estimates of cost over time is developed in detail in the companion report on cost estimation by Adele Palmer, et al.

down of forces that is programmed to take place over the next five years.⁵ As the figure suggests, the four high budget alternatives differ only slightly in near-term costs, mainly because of changes in their personnel profiles and training programs. The NGAUS alternative, for example, would maintain National Guard and Army Reserve training programs much closer to their historical levels, while cutting active training loads more sharply than the other alternatives. The net effect keeps O&S costs slightly above the Base Force levels throughout the FYDP period.

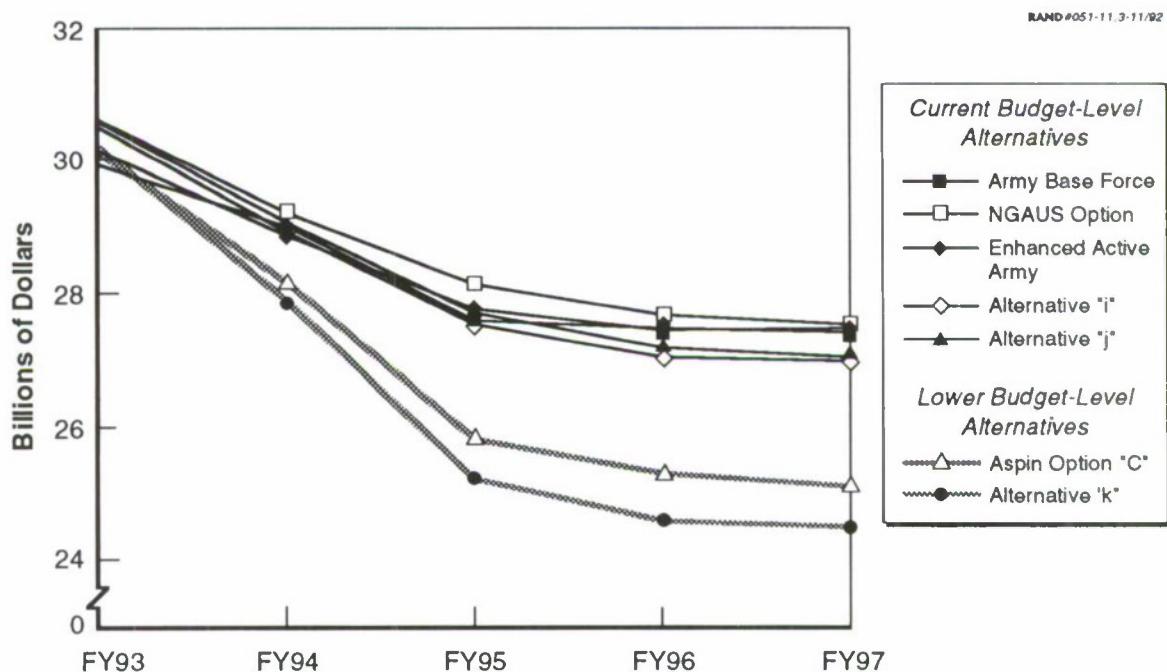


Figure 11.3—Projected Time Profiles of Forces-Related O&S Costs

The projected decline in O&S costs will, of course, be greatest for the two lower-budget-level forces; the Aspin "C" alternative, and Alternative "k." In the near-term, Alternative "k" costs less than the Aspin alternative because a larger portion of its force is operating at the reserve components' lower operations tempo.

⁵Costs associated with the reform packages discussed in Chapter 7, such as reserve unit re-stationing, are not included in these estimates.

Personnel

Because the average cost of reservists differs from the average cost of active duty members, equal-cost alternatives have a significantly different mix of personnel. Figure 11.4 shows the personnel mix of each alternative force structure.

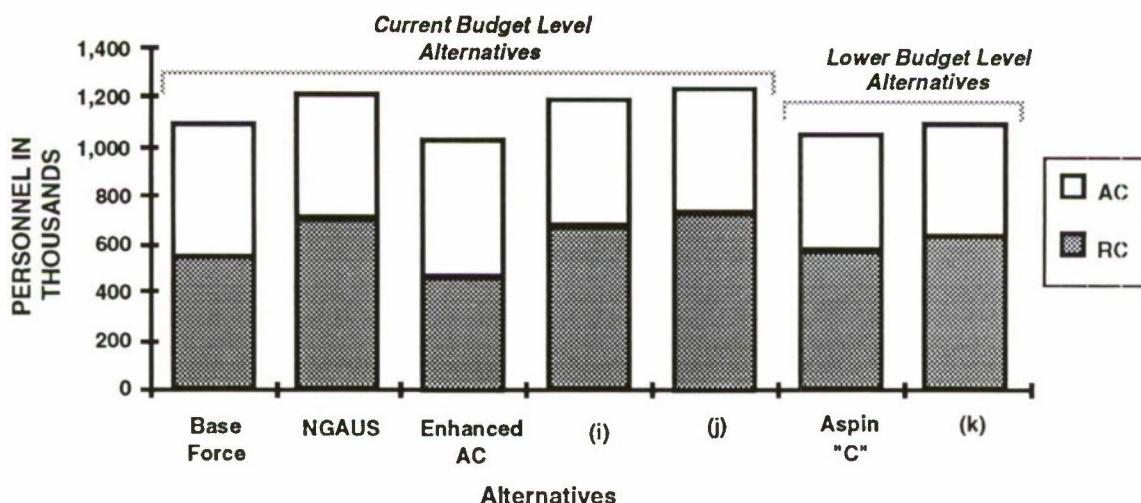


Figure 11.4—Active and Reserve Component Personnel for Army Alternatives

Three of the current budget level alternatives have end-strength levels approximately equal to the FY 1993 numbers authorized by Congress (the NGAUS proposal, Alternative "i," and Alternative "j"). At the lower budget level both alternatives (Aspin "C" and Alternative "k") have about the same size reserve component as the currently planned Base Force.

Combat Brigades

Figure 11.5 compares the number of heavy combat brigades in each alternative. Figure 11.6 does the same for light combat brigades. As can be seen, the force structure alternatives differ not only in active/reserve mix but also in overall size. It should be noted that based on the analysis presented in Chapter 7, not all the brigades in many of these force structures will be available to respond to a crisis, and some may not be available even as much as a year after call-up of reserve forces.

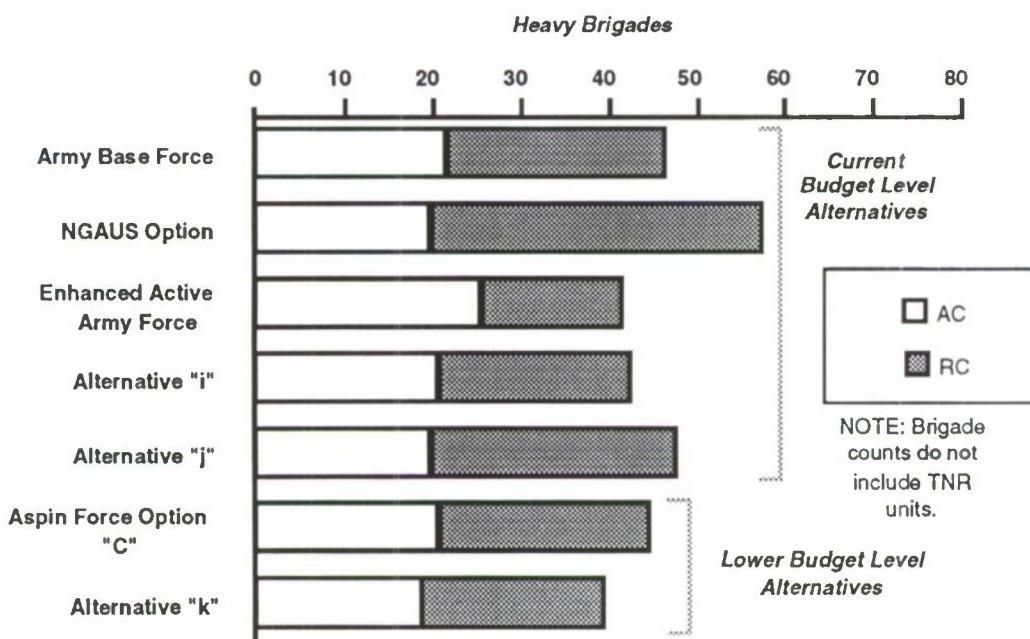


Figure 11.5—Active and Reserve Component Heavy Combat Brigades

Heavy Forces. The number of heavy maneuver brigades varies widely across the alternatives because of differences in both active components and reserve components of each alternative. The NGAUS option provides the largest force, and the Enhanced Active Army Force alternative provides the largest active complement of heavy brigades.

Light Forces. The number of light combat brigades is nearly equal in all the alternatives at the current budget level. At the lower budget levels, the Aspin "C" force cuts the number of active light brigades and includes two theater defense brigades as part of its light brigade complement.

Capabilities—Generating Fully Trained Combat Brigades

Perhaps the most critical difference among alternatives is the way they provide fully trained brigades after mobilization. Figures 11.7 and 11.8 show the number of heavy and light brigades that would be available after mobilization based upon the training capacity of each alternative.

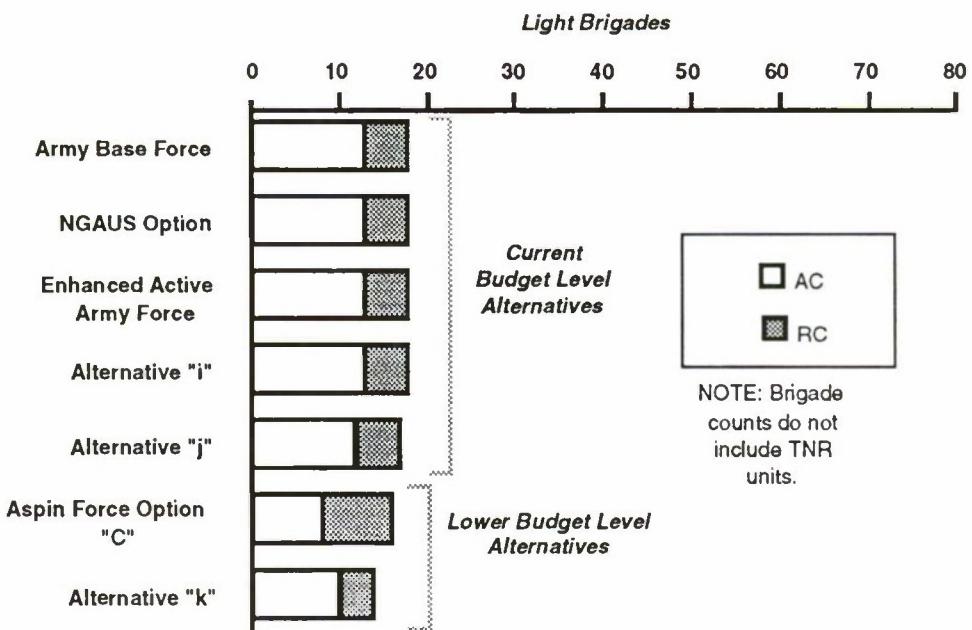


Figure 11.6—Active and Reserve Component Light Combat Brigades

Heavy Forces. Figure 11.7 illustrates the capability of each alternative to generate fully trained heavy combat brigades that are ready for deployment.⁶ As the figure indicates, the Base Force, NGAUS, Aspin “C,” and Alternative “j” provide similar numbers at similar times. The Enhanced Active Army Force alternative provides the largest number of heavy brigades the soonest; Alternative “i” and then Alternative “k” produce the most over time.

Light Forces. While a great deal of attention and analysis have been focused on understanding train-up requirements and schedules for heavy round-out brigades, very little analysis has been done on light brigades. In comparison to the train-up estimates developed in Chapter 7 for heavy brigades, we would expect several differences for light brigades. Less time would be required to prepare and move equipment. Little, if any, time would be needed for gunnery skills other than for crew-served weapons. We would expect

⁶It should be noted that in scenarios illustrative of the requirements dictated by the U.S. National Military Strategy, reserve forces could be needed much earlier than the 12 months used for illustrative purposes in the figures above. For a detailed discussion of the timing of these requirements, see the classified companion report.

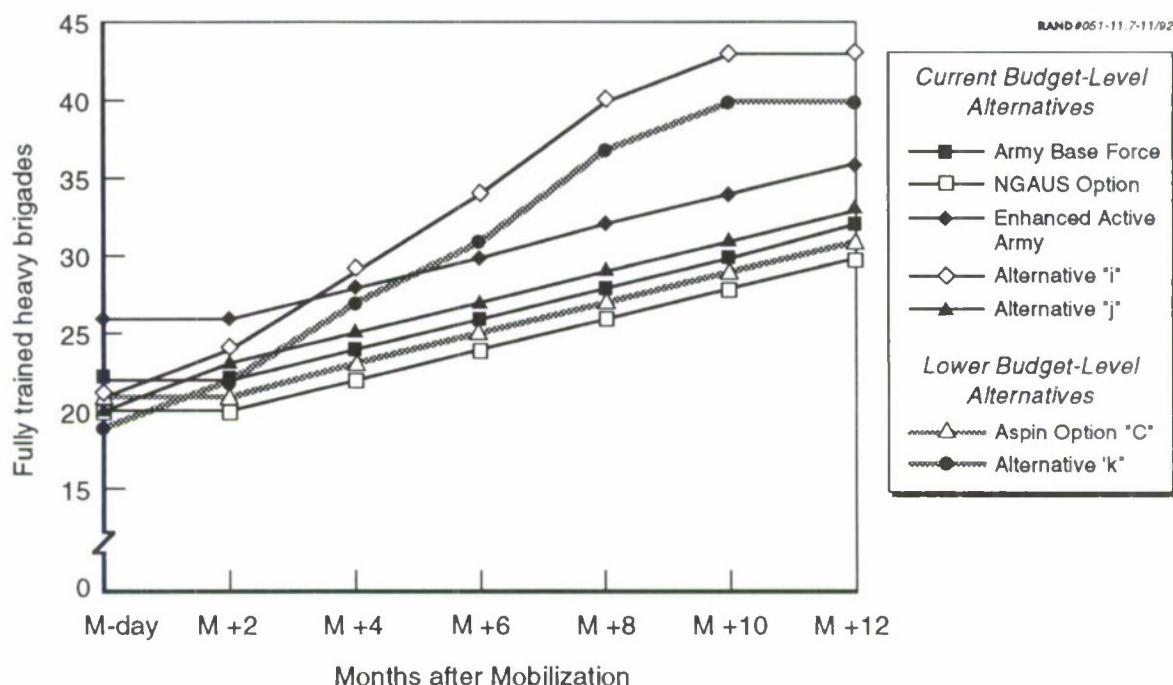


Figure 11.7—A Comparison of Each Alternative's Ability to Field Heavy Combat Brigades over Time

more time to be devoted to individual conditioning and skills and to squad and platoon lanes and live fire exercises, while less time would probably be devoted to brigade-level operations.

In the absence of analytically based estimates of train-up time for reserve light brigades (especially the airborne and air assault brigades included in Aspin Option "C") we have used a rough estimate that modifies the analytic findings for heavy brigades presented in Chapter 7 to account for the differences outlined above. This results in a training time of 60 to 90 days for the first units and 45 days for succeeding units. These are used in Figure 11.8 to illustrate the relative capabilities of each alternative.

Alternative "i" produces light brigades that are ready for deployment more quickly than any other alternative. At a reduced budget level, Alternative "k" generates light brigades most quickly, but the Aspin "C" force would equal it nine to ten months after mobilization and would eventually produce two more light brigades.

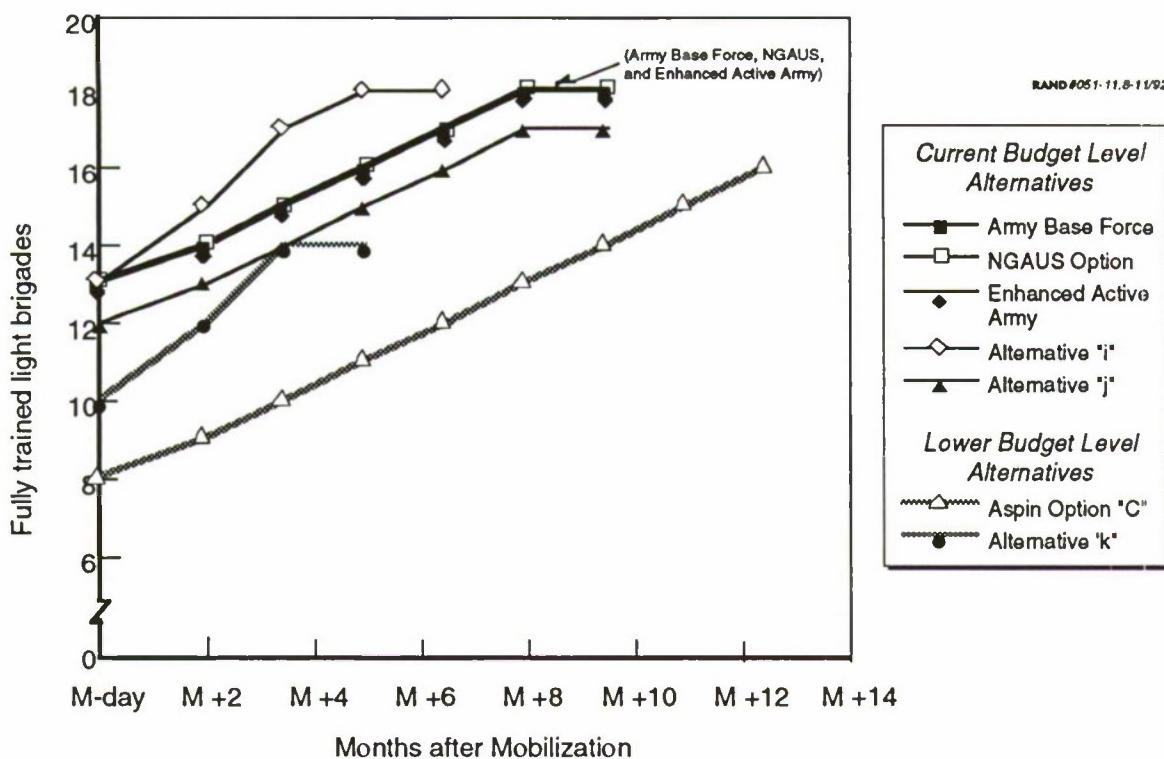


Figure 11.8—A Comparison of Each Alternative's Ability to Field Light Combat Brigades over Time

Army Force Effectiveness Scorecard

In designing and assessing alternative force structures, our purpose was not to find an optimal solution or single answer. Rather, it was to give the Secretary of Defense and the Chairman of the Joint Chiefs of Staff "comprehensive analytic information" to help them determine "the mix or mixes of reserve and active forces . . . that are considered acceptable to carry out expected future military missions." To that end, a "scorecard" with an appropriate narrative is the best way to sum up the range of situations considered and options assessed.⁷

Figure 11.9 shows the ability of each Army force structure alternative to meet the demands of the National Military Strategy. The scorecard is divided into

⁷The advantages of using a scorecard is discussed in Hugh Miser and Edward S. Quade, *Handbook of System Analysis: Overview of Uses, Procedures, Applications, and Practices*, North Holland, 1985, pp. 93-109, pp. 231-236.

four areas: Forward presence, crisis response strategic reserve, and reconstitution. (Each area was discussed in detail in Chapter 6 and in the companion classified report.) The specific crisis-response scenarios considered were MRC-East, MRC-West, and the Concurrent Contingencies. The scorecard reflects the assumptions of the Illustrative Planning Scenarios concerning force effectiveness, response times, and lift. However, the findings are robust and did not change when we altered scenario assumptions, as discussed below. In the figure, each cell is shaded to reflect the ability of the alternative to deliver forces for a particular requirement. The dark shading indicates a substantial failure to meet demands or requirements. The gray shading indicates marginal deficiency, and the lightest shading indicates that the requirement has been satisfied.

Crisis Response. All of the alternative force structures were able to meet the DPG requirements for single theater MRCs (where requirements mean building to the decisive force level as available lift allows). However, given our *best estimate* of approximately 128 days to complete post-mobilization training, the Base Force, NGAUS and Aspin "C" alternatives could not meet requirements if reserve brigades were used. Alternatives "i," "j," and "k," which roundout at lower echelons, were able to get the reserve combat units into the fight.⁸ This assessment holds for a range of plausible lift capabilities, bounded on the low end by the FY 1993–1997 defense program and on the high end by the JCS Mobility Requirements Study's medium-risk lift recommendations. (A complete discussion of lift is contained in the companion classified report.)

The requirements to close the decisive force as quickly as lift permits for MRCs East and West exert a powerful effect on this assessment. In Chapter 6, we discussed our visits to the war fighting CINCs and the results of our political/military game and the general conclusion that if lift and active units were available, it was not acceptable to wait for reserve units to complete post-mobilization training. This is reflected in the scorecard assessment.

The concurrent contingency requirement distinguishes the alternatives. Using the DPG's representative MRC-Concurrent Contingencies, our analysis shows that the Enhanced Active Army Force and the Alternative "i" force perform best (and equally well) followed by "k," "j," and the Base

⁸The Army National Guard has argued that procedural reforms such as Bold Shift and Title XI can have the same effects as lower-level roundout without changing existing organizational arrangements. If they are correct, those changes will have the same scorecard rating as the Alternatives "i," "j," and "k."

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	Forward presence / Europe	Forward presence / Korea	Crisis response / MRC-East	Crisis response / MRC-West	Crisis response / MRC-Contingencies	Strategic reserve / Concurrent Contingencies	Strategic reserve / Trained remainder after heavy rotation	Strategic reserve / Heavy rotation base	Strategic reserve / Light rotation base	Reconstitution assets
Current Budget Level Forces	Meets requirements	Meets requirements	Substantial shortfall	Substantial shortfall	Marginal shortfall	Meets requirements	Meets requirements	Substantial shortfall	Meets requirements	Yes Cadre divisions
Base Force			*	*						No
NGAUS	Marginal shortfall		*	*	Substantial shortfall					No
Enhanced Active Force										Yes Training "brigades"
Alternative "i" Force	Marginal shortfall									No
Alternative "j" Force	Marginal shortfall									Yes Reconstitution divisions
Lower Budget Level Forces										Yes Training "brigades"
Aspin Option "C" Force		Marginal shortfall	*	*	Substantial shortfall					
Alternative "k" Force	Substantial shortfall				Marginal shortfall					

* The Base Force, NGAUS Force, and Aspin Option "C" Force can meet these requirements only if reserve brigades are not used.

Figure 11.9—Army Force Structure Scorecard

Force alternatives, in that order. The poorest, by a very large margin, are the NGAUS force and the Aspin Option "C" alternatives. However, Congressman Aspin did not design any of his force options to fight the second contingency according to the DPG's concept of operations. Rather, it was predicated on the ability of U.S. air power independently to halt the second adversary.

Forward Presence. In many of our alternatives, we used Army units stationed overseas as "the bill payer," in order to better meet the crisis response requirements of the DPG. Therefore, different alternatives have different numbers of forward-stationed Army units. All alternative force structures met the DPG's goal for forward-stationed Army forces in Korea, with the exception of the Aspin "C" force. However, only the Base Force and the Enhanced Active Army Force alternative met the DPG's goal for forward presence in Europe.

Strategic Reserve. Using the Base Force as a benchmark, the scorecard assesses the size of the deployable, residual force left in the CONUS after forces are engaged in two MRC-type contingencies. Here, the "i" alternative force excels and could easily provide a rotation base for heavy forces to sustain overseas military operations. However, none of the alternatives, not even the NGAUS force, have sufficient light divisions to sustain a rotation base.

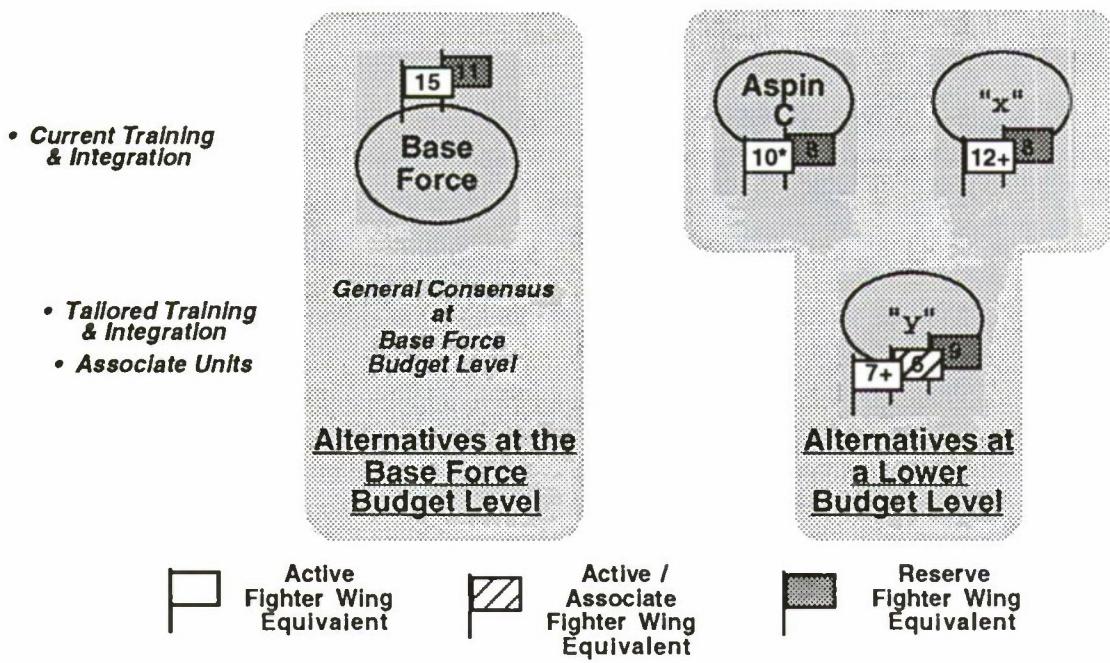
Reconstitution. The scorecard shows how each alternative supports reconstitution, including a brief description of the primary way reconstitution would be managed. For example, the Base Force includes two cadre divisions. The Aspin "C" alternative has similar reconstitution divisions. The mobilization training units of Alternative "i" could provide a core of active and reserve personnel that, after they had trained the last reserve unit, could become the base of five new divisions.

In sum, the scorecard shows that no one force alternative dominates on all accounts. However, and most critical for any alternative that includes reserve combat units, our assessment of required post-mobilization training times indicates that unless specific changes are made to improve reserve readiness, these units are not likely to be deployed to support an MRC until after the fight has begun. There are many suggested means of improving the readiness of reserve combat units. It is too early to say definitively whether Bold Shift or the Title XI reforms can do the job, but other alternatives should also be considered. Lower echelon roundout and a more integrated force structure hold the promise of an early commitment of reserve forces—something that many in Congress seem to want.

Air Force Alternatives

Figure 11.10 shows alternatives we presented in Chapter 9. They include the Base Force and three other force structure options at a budget level that is approximately 10 percent lower than that of the Base Force. The Base Force reflects a major drawdown in the active forces that provide a power projection capability, because of the need to preserve mobility/lift and battle management (C3I) capabilities. Should additional force cuts be necessary, it is not clear that it would be appropriate to continue applying this formula. The challenge for these smaller force structures is to provide an appropriate power projection capability for crisis/contingency response, while maintaining adequate overall force size and balance.

Two of the force structure alternatives we analyzed at the lower budget level rely on the current approaches to training and integration. These forces differ primarily in the composition of the fighter force. The third alternative was designed in response to challenges facing smaller force structures: the



* Note:

Aspin Option "C" totals 19 Fighter Wing Equivalents if multi-role aircraft committed to the defense suppression mission are included.

Figure 11.10—Air Force Alternative Force Structures for Final Assessment

need for a robust interdiction and multi-role capability despite smaller overall force size. This alternative differs from the others primarily in the degree of its reliance on the reserve associate concept.

Operations and Support (O&S) Costs

Figure 11.11 shows the long-term recurring, or steady-state, costs⁹ for the three lower-budget-level alternatives. All have been designed with costs that are approximately 10 percent below that of the Base Force so that capability differences can be clearly distinguished.

⁹We refer to these costs as operations and support costs for convenience. As was the case for our Army cost estimates, the Air Force costs that are determined by the size and nature of different force structures are only a part of the Air Force's overall O&S budget. Additional "fixed" O&S costs amount to approximately \$20 billion each year for the Base Force, resulting in an annual Air Force O&S budget of over \$40 billion. The Air Force budget totals about \$70 billion; the additional funding includes such categories as research and development and procurement.

While the total costs for each alternative are about the same, there are differences by component. The alternatives do not show the same dramatic distinctions we saw among the Army alternatives, but the differences are important. For example, the cost estimated for the reserve component in Alternative "y" is 25 percent larger than that for Alternative "x."

Again, it should be noted that the costs attributed to the reserve component are those associated with its force structure and do not include a share of the costs for many commonly used facilities (such as bombing ranges, or navigation aids) or for active component support for the air reserves (such as that provided as part of routine peacetime operations in an active squadron augmented by associate air and ground crews). Because it is often not possible to ascribe such costs in a meaningful manner,¹⁰ the study assessed and com-

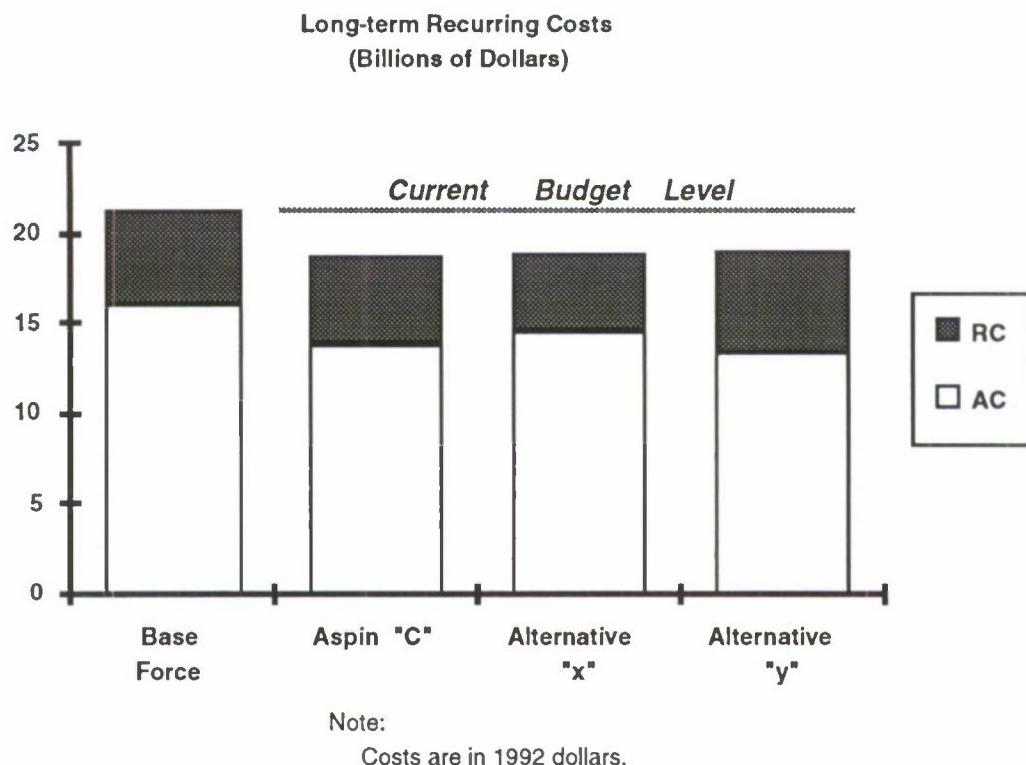


Figure 11.11—O&S Costs for Air Force Alternatives

¹⁰This is because in many cases (though not all) this support is a by-product of on-going active component operations and the marginal costs of providing the support to any additional unit, including reserve units, are very low. Assignments of predominantly "fixed" costs to any particular unit are in the end arbitrary.

pared entire alternative air forces instead of trading off active and reserve units at the margin.

Our estimates of the near-term time profile of costs suggest no appreciable differences among the alternatives.

Personnel

Figure 11.12 plots the number of active and reserve personnel in each alternative. As was the case in the comparison of cost, personnel differences between the alternatives vary far less than in the Army alternatives.

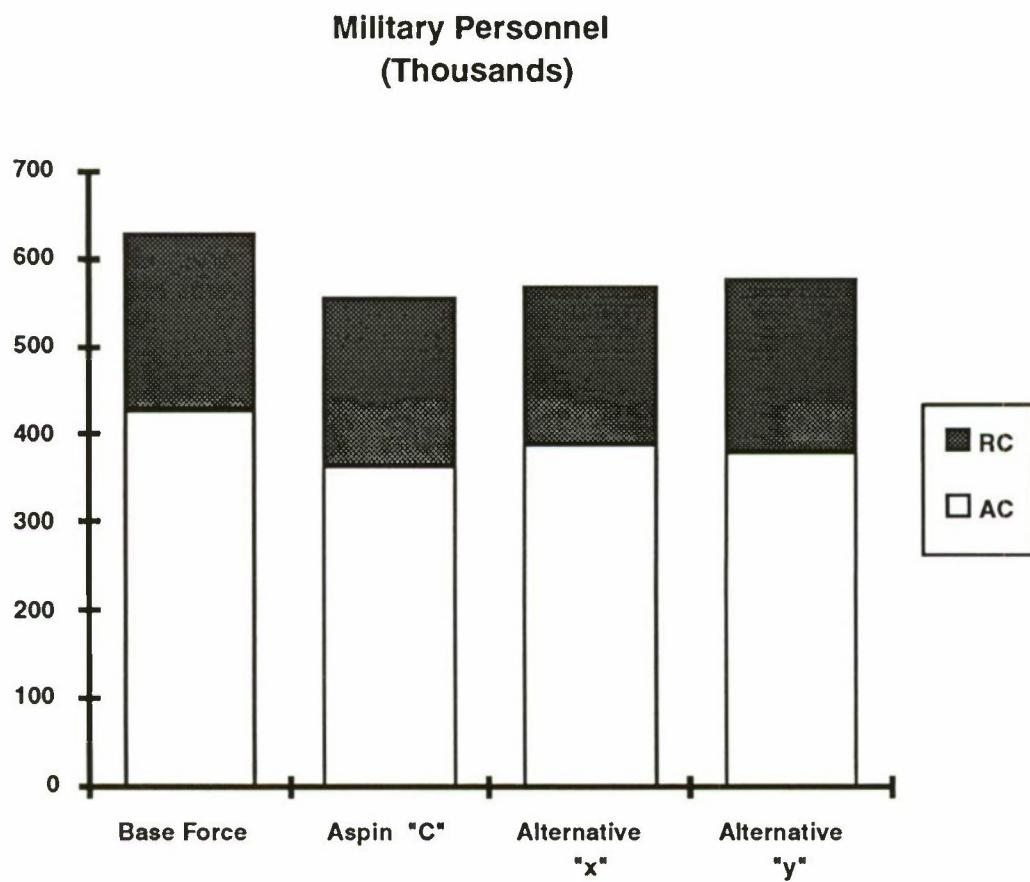


Figure 11.12—Active and Reserve Personnel for Air Force Alternatives

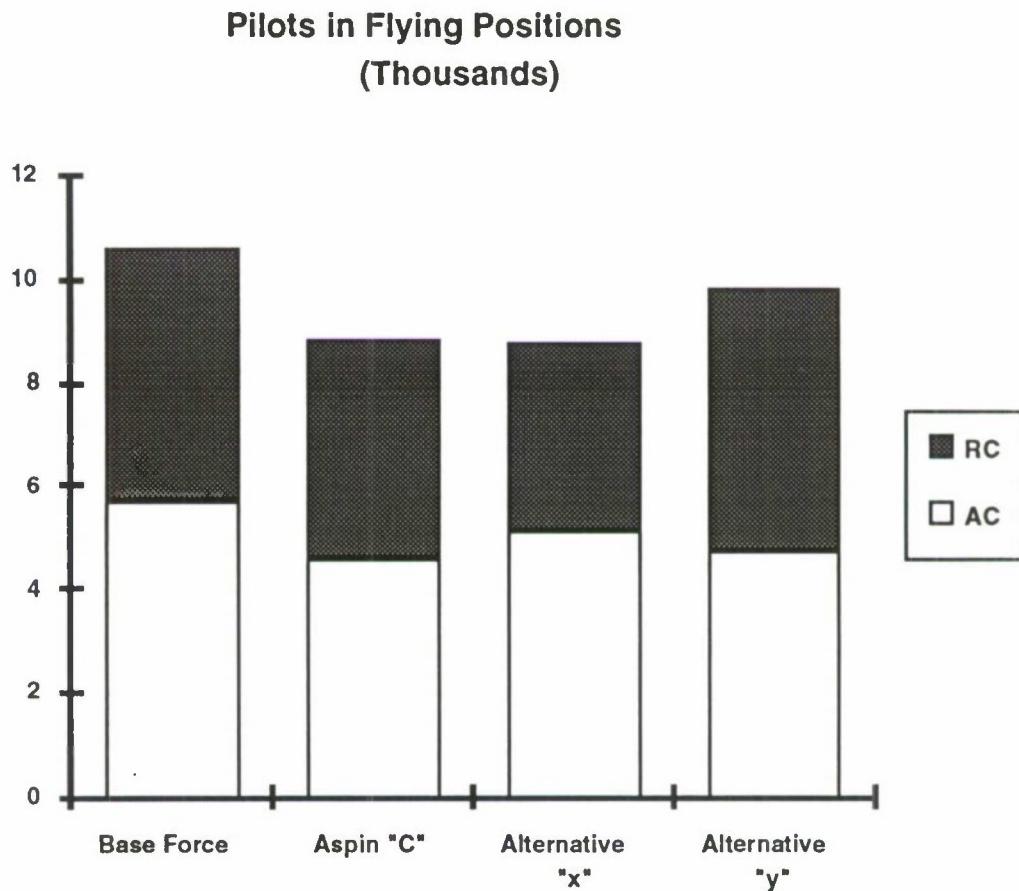


Figure 11.13—Pilots in Flying Positions for Air Force Alternatives

Nonetheless, the alternatives do have differences that could be viewed as substantial. For example, Alternative "x" implies an eight percent decrease in reserve personnel when compared to the Base Force, while the Aspin Option "C" and Alternative "y" forces would represent a slight increase in reserve strength despite the overall drop in personnel for these forces.

The alternatives also have differing needs for reserve flying crews because of their different force structures as shown in Figure 11.13.

Figure 11.3, which shows the number of active and reserve pilots needed to fill the flying positions in each force,¹¹ illustrates that the alternatives cover a wide range of active-to-reserve pilot ratios. The air reserves count on prior active service pilots for most of their flying position needs. Thus, alternatives with smaller active forces providing pilots to larger reserve forces may not prove sustainable in the long run. While the Aspin proposal and the Base Force have a similar active-to-reserve-pilot ratio (at about 1 to 0.9), Alternative "x" may actually be more capable of sustaining the reserve pilot force in the long run (with a ratio of about 1 to 0.7). Alternative "y," on the other hand, raises the question of long-term sustainability since it has a ratio of 1 to 1.1. While a detailed assessment of this is beyond the scope of the current study, we are already conducting follow-on research for OSD.

The general consensus about the active/reserve mix for the Air Force and the smaller cost differences between active and reserve units keep the Air Force alternatives from differing as markedly as the Army alternatives in terms of personnel and costs. As we will illustrate in the next section, the primary differences between the alternatives lie in *what role* the reserves play, and not *how many* reservists are in the force.

Capabilities—Numbers and Types of Aircraft

In comparison to other Services, Air Force active and reserve units have only small differences in readiness. As a result, it is possible to use the total number of units (fighter wings or numbers of bombers, for example) as a rough measure of the overall capability of a particular alternative. We use this measure to gauge how well each alternative meets the challenge those smaller forces face to provide the most effective power projection capability while maintaining required mobility/lift and C3I capabilities.

The next two figures compare the power projection and the mobility/lift capabilities of the alternatives. As can be seen from the figures, the force structure alternatives differ most markedly in the active/reserve mix of the air-

¹¹These figures are based on crew ratio calculations. Such computations determine only the flying position portion of total pilot requirements for each of the alternative forces. In FY 1992 for example, 38.8 percent of active pilot requirements and 61.4 percent of Air Force Reserve pilot requirements were determined by crew ratio computations. Other requirements come from the following considerations: the *non-crew ratio force*, which includes squadron supervisory personnel (i.e., commanders and operations officers) and pilot manning for aircraft, such as test aircraft, which are neither combat nor training coded; *training*, which includes all pilot manning for training coded aircraft; and *staff positions* essential to support operational flying. Additional allocations allow flying units to remain at full strength despite pilot participation in professional military and advanced flying programs, those transferring between units, etc.

craft performing these two major mission areas. All three alternatives at the lower budget level have similar C3I capabilities with the exception of the additional air- and ground-C3I manning that Alternative "y" provides.

Power Projection Capability. While all three lower budget forces are smaller and less capable than the Base Force, the number and type of aircraft that provide each alternative's power projection capability are markedly different. This is because the effective size of an alternative can be increased by relying more effectively on the air reserves in some parts of the force and buying additional force structure with the savings that result. The cost advantages in doing this are more limited than with the Army, because the high state of air reserve readiness generates relatively higher costs. Effective size can also be increased by providing more air and ground crews (either reserve or active) to increase the sortie generation capability for a given number of aircraft.

Figure 11.14 shows the power projection capabilities of the alternatives. The Aspin "C" force provides the equivalent of 19 fighter wings (if the multi-role fighters dedicated to the SEAD role is included in the total). Alternative "x" provides over 20 fighter wings with more active duty forces to provide overseas presence and air-to-air capabilities. Alternative "y" relies on the associate unit concept to provide over 22 fighter wing equivalents and over 23 wings if the capabilities provided by the additional crews for interdiction forces are considered. It is capable of the same forward presence and air-to-air capabilities as Alternative "x" and includes two more wings of multi-role aircraft (one active and one reserve).

The overall size of the bomber component of the power projection forces in all three alternatives is about 80 percent of that of the Base Force. In the Aspin proposal about half of the B-52s are flown by stand-alone air reserve units; in Alternative "x," the bomber force is entirely active; and in Alternative "y," it is based on the associate unit concept.

Mobility/Lift Capability. As shown in Figure 11.15, the mobility and lift capabilities are roughly the same across alternatives. Strategic lift aircraft are essentially the same as the Base Force for all alternatives, reflecting the increased emphasis on contingency operations and deployment capabilities.

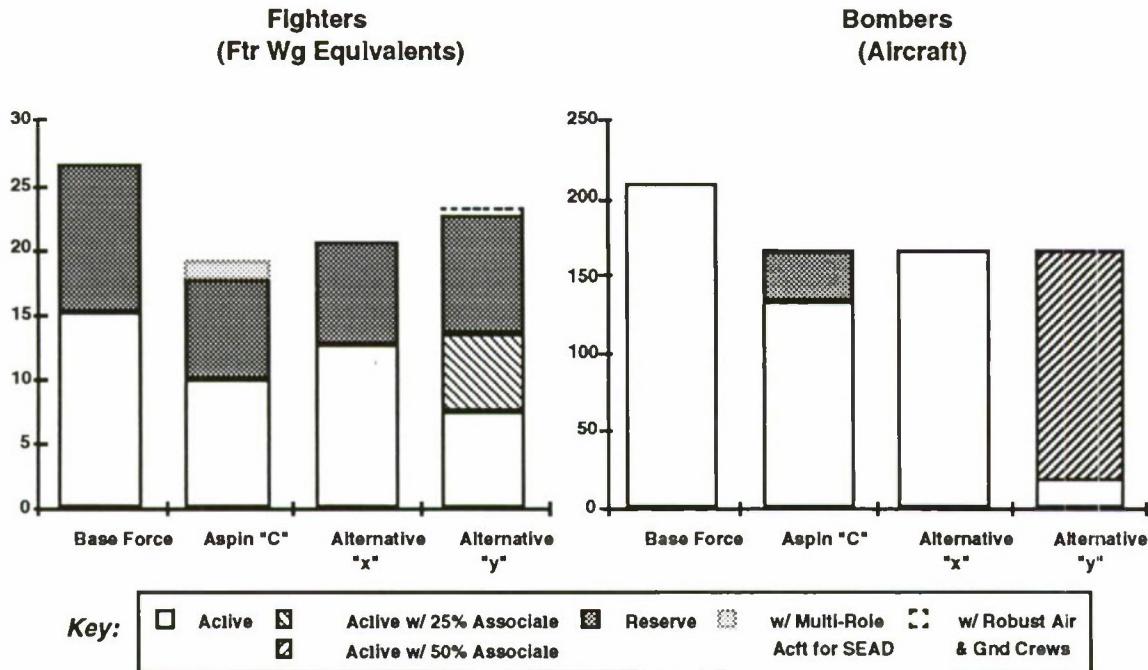


Figure 11.14—Comparison of the Power Projection Capabilities of Each Alternative

The ratio of fighter aircraft to tanker aircraft is the same in each of the three lower-budget-level alternatives. This ratio is “richer” than that of the Base Force and results in larger or smaller tanker forces according to the size of the fighter forces in each alternative.

The tactical lift forces have the same overall size in each of the alternatives.

The mix (active, associate, or reserve) for the mobility and lift mission varies widely across the alternatives because of differences in the approach taken by each alternative to reliance on reserves. Strategic lift forces in the Aspin proposal depart from both the Base Force and the other alternatives because less reliance is placed on associate units (resulting in higher costs for this part

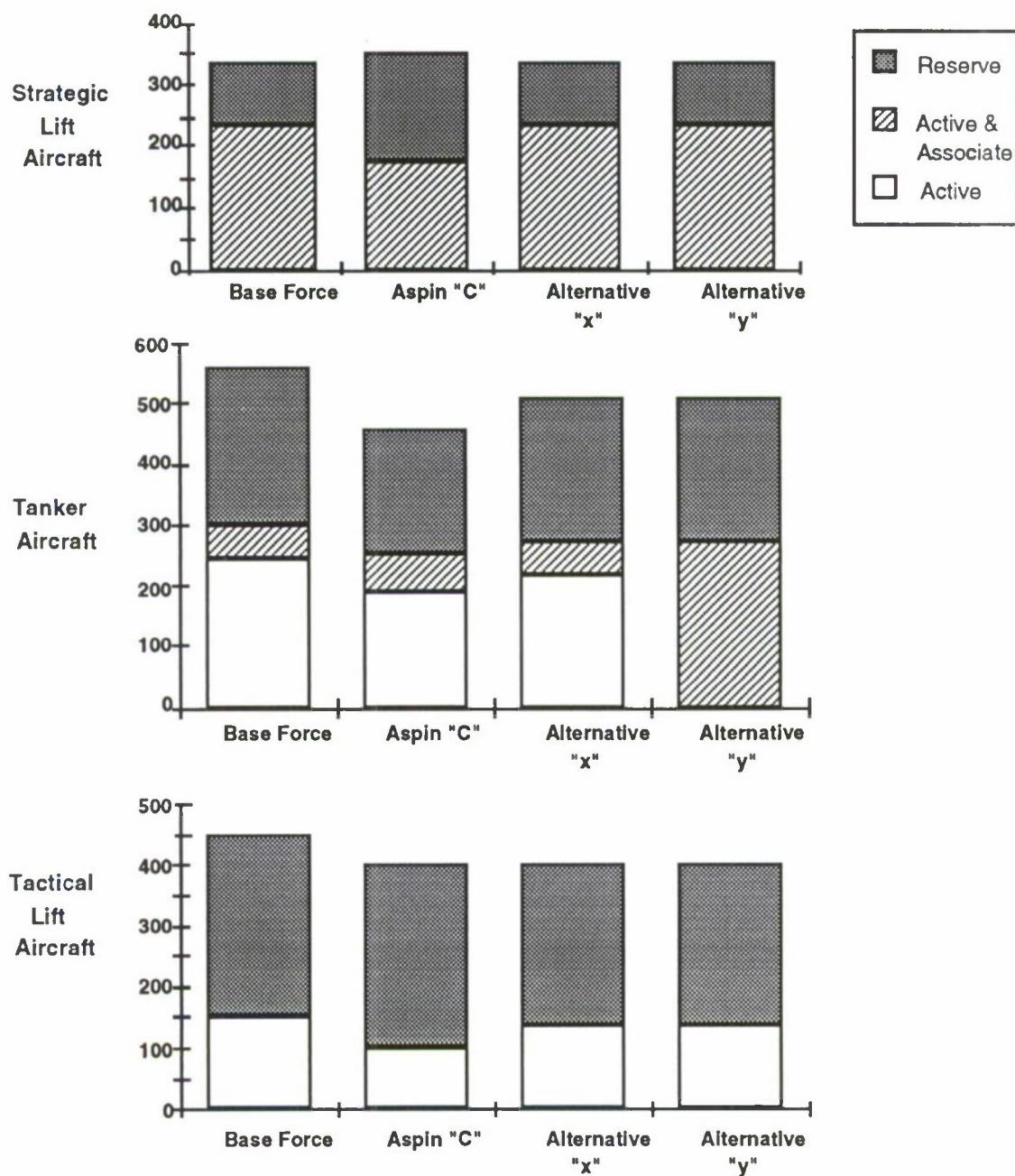


Figure 11.15—Comparison of the Mobility and Lift Capabilities of Each Alternative

of the force due to the industrial funding advantages enjoyed by the associate units).¹²

The mix of tanker forces mirrors the current approach in both the Aspin proposal and Alternative "x": both use the associate unit concept in only the KC-10 component of the force. Alternative "y" relies on the associate concept for the entire tanker force (both KC-10s and KC-135s), as is currently the case for the strategic airlift force.

The mix within the tactical airlift portion of the force is more reserve-intensive in the Aspin proposal than in the other alternatives. However, this shift results in a greater level of budget obligations because the active tactical airlift units can cover most of their annual recurring costs through the current Defense Business Operations Fund arrangements, while reserve units cannot.

Air Force Scorecard

For the Air Force, the central question in carrying out expected future military missions is not the *responsiveness*, or availability of the force over time—both active and air reserve units maintain high readiness levels and can move to theater (and from one theater to another) quickly. Instead, the central issue is *capabilities*. As we have explained, air forces must provide three fundamental capabilities, power projection, mobility/lift, and battle control (C3I). Thus, the sufficiency of the alternatives in each of these areas is the focus of our discussion.

¹²Our recurring cost estimates do not include the reimbursable costs associated with airlift operations funded through the Defense Business Operations Fund (DBOF, which incorporates the former Air Force Airlift Service Industrial Fund). Most recurring costs for active Air Force C-5, C-141, and C-130 squadrons are paid for through the DBOF, as are most Reserve Associate squadron costs for C-5 and C-141 aircraft, and a portion of the costs for Reserve and Guard equipped C-5 and C-141 squadrons. (No reserve component C-130 operations are funded through the DBOF.) Charges to customers who utilize the airlift services provide the reimbursement funds; hence the Air Force requires no direct, appropriated funds (military personnel, O&M, and recurring procurement) to finance these activities.

Reserve component airlift operations cannot be entirely funded through the DBOF, because most of the reserve unit flying has been determined to be for basic training, as distinct from proficiency flights, which can provide airlift services to other elements of DoD.

This results in the counterintuitive effect that switching airlift squadrons from the active or associate units to stand-alone reserve units may actually increase funding requirements (as well as the net cost to the government), even though it replaces full-time military personnel with part-time personnel. The cost effect is real, and not just an accounting peculiarity, because the sellable transportation services lost in making the switch would have to be replaced by purchases on the civilian market (assuming that DoD's total air transportation requirements continued to exceed those available through organic airlift operations). For a fuller discussion see the companion report, Adele Palmer et al.

Current policy guidance is provided in AFR 170-24, *Airlift Service, Air Force Industrial Fund*, 30 September 1989.

Figure 11.16 shows the ability of each Air Force force structure alternative to provide these fundamental capabilities. Because these alternatives are all lower-budget-level forces, we compare their ability to that of the Base Force, which is generally considered to be “acceptable to carry out expected future military missions” at the currently planned budget level. The scorecard is divided into four areas: the three capabilities outlined above and other important considerations. Each cell is shaded to reflect the risk in terms of the ability of the alternative to provide the capabilities inherent in the Base Force. Dark shading reflects substantially less capability than the Base force; gray shading reflects marginally less, and light shading indicates a capability that is substantially the same as the Base Force.

As a quick overview of the scorecard will show, the alternatives differ most in power projection capability—although there are some other important differences, particularly in tactical lift. This is because these forces have been designed with a strong regard for the need for battle management and mobility/lift, in light of the kinds of military contingencies they may be expected to carry out in the future. To meet the lower budget levels that these alternatives must observe, compromises had to be made. Each of the alternatives chose to make these cuts in power projection capabilities. Because of this, the alternatives do not hide unspecified hollowness in hard-to-appreciate areas such as C3I. They are what they seem, and these smaller alternatives provide less power projection capability than the Base Force. That said, there are important differences that serve to distinguish the alternatives from one another; these are discussed below.

Power Projection. The difference in power projection capability between the alternatives manifests itself predominantly in fighter capabilities; bomber capability, though less than in the Base Force, is essentially the same across the alternatives. Aspin Option “C” has the least fighter capability (roughly 19 wings total). Alternative “x” has approximately two wings more than the Aspin force (a total of 20 and one-half wings). This increase is in air-to-air capability, which could be judged as lacking from the Aspin alternative. Alternative “y” also has these air-to-air assets and includes two additional multi-role wings and additional air and ground crews for interdiction units. Its capabilities would be rated at over 22 wings, and over 23 if the greater sortie capability of the additional crews is taken into account. This is roughly one multi-role wing and two attack wings less than the Base Force.

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		Power Projection Capability	Mobility - Lift Capability	C3I Capability	Other Considerations			
	Fighter Wings	Bombers	Strategic Lift	Air Refueling	Tactical Lift	Strategic Air-to-Air Operations	Air-to-Ground Operations (inc. FAC)	Pilot Sustainability
Current Level	Base Force							Yes
Lower Budget Level Forces	Aspin Option "C"		b					Yes
	Alternative "x"				d			Yes
	Alternative "y"	a			c	e		Unknown

NOTES:

- a. Includes more air-to-air, multi-role and interdiction capability than Option "C" and more multi-role and interdiction capability than Alternative "x," but about three wings smaller than the Base Force.(two CAS and one multi-role).
- b. Includes about six percent more airlifters than the Base Force.
- c. Includes additional crews for air-to-air C3I aircraft such as AWACS.
- d. Has about one-half wing fewer Forward Air Control Aircraft than the Base Force.
- e. Has about one-half wing fewer Forward Air Control Aircraft than the Base Force; provides additional crews for air-to-ground C3I aircraft such as Joint STARS.

Figure 11.16—Air Force Scorecard

Mobility—Lift. The strategic lift and tanker forces of the alternatives are nearly the same in all the alternatives and roughly equivalent to the Base Force. The Aspin alternative does provide about six percent more strategic airlift aircraft than either the Base Force or the other two alternatives, but active strategic airlift crews are only about 75 percent of the Base Force level.

The differences in tactical lift are more pronounced. All the alternatives have smaller tactical airlift forces than the Base Force. While these are of the same overall size, the Aspin force has a substantially smaller active tactical airlift capability (about 65 percent of that in the Base Force in comparison to Alternative "x" and Alternative "y," which have about 90 percent of the Base Force's capability). Because of the high peacetime flying demands on this force (e.g., for humanitarian and peacekeeping missions), such a force represents a substantially lesser capability.

C3I Capability. The battle control or C3I capabilities of the alternatives are essentially the same as the Base Force. The Aspin "C" alternative provides precisely the same capabilities, while both Alternative "x" and Alternative "y" have about one-half wing fewer forward-air control aircraft than the Base Force. Alternative "y" provides additional air and ground crews for the more sophisticated C3I systems such as AWACS (air-to-air operations) and Joint STARS (air-to-ground operations).

Other Considerations. Perhaps the most important other distinction between the alternatives is the long-term sustainability of the pilot force. Since the air reserves depend on the active force for their source of trained pilots, greater demands for reserve pilots from smaller active forces may not be practical. While the Aspin "C" alternative and Alternative "x" have an active-to-reserve pilot ratio that is the same or better than the Base Force, Alternative "y" is substantially different. While it is not possible to assess the pilot sustainability of this force without further research, this issue bears careful study and may mean that, in the absence of important changes in personnel policy, Alternative "y" is not practical.

In sum, the scorecard shows that the smaller alternatives are less capable than the Base Force, particularly in their power projection capability. There are important differences between the alternatives. With a greater reliance on reserve forces (through the application of the associate concept in Alternative "y"), the shortfall can be compensated for to a large extent. Relying more on air reserve forces in new ways does entail uncertainties, among these are the long-term sustainability of the pilot force.

12. Comparison and Assessment of Alternatives: Navy and Marine Corps

Introduction

In Chapter 10, we presented the alternative force structures that CNA developed for the Navy and Marine Corps. In this chapter, we present CNA's comparison of the alternatives' cost-effectiveness.

Evaluating the Navy Alternatives

Table 12.1 summarizes the force capabilities of the Navy alternatives CNA developed and described in Chapter 10. In comparing the alternatives, they considered the following characteristics:

- Combat capability and capability to generate forward presence,
- Time required for training,
- Feasibility for recruiting/retention, and
- Cost.

Combat Capability and Forward Presence

Measured against two MRCs and the Navy's current patterns of forward deployment, the capabilities of the different options are similar, as shown in Figure 12.1. In the figure, CNA combined alternatives to generate force mixes (as required) with more reservists (to the right of the Increased Reserve Base Force [IRBF] case) and fewer reservists (to the left of the IRBF case). A lightly-shaded cell indicates sufficient capability. A darker-shaded cell indicates that the capability is either uncertain or not quite sufficient. Clearly, capabilities increase as one moves to the right of the figure, but the significance of the increase is not apparent. The similarity of capabilities across the entire figure means that, within the two-MRC scenario, a requirement has not been identified for the extra capability.

Table 12.1
FORCE ALTERNATIVES

Alternative	Description
Base Force	Includes 450 ships (including 12 aircraft carriers, 150 surface combatants, and 80 submarines), 11 active air wings, 2 reserve air wings, about 500,000 active component personnel, and about 118,000 Selected Reservists.
Aspin Option "C"	Includes 340 ships (11 aircraft carriers, 100 surface combatants, 40 submarines), 10 active air wings, 2 reserve air wings, 432,000 active component personnel, and about 112,000 Selected Reservists.
Reserve combat	Increases the number of surface combatants in the Aspin alternative to 150 by adding 50 frigates to the NRF and retains 50 layup SSNs.
Increased reserve base force (IRBF)	The same as the Administration's Base Force except that the number of Selected Reservists is increased to about 142,000—the level originally authorized by Congress in 1992 for 1993.
Increased reserve support forces	Has almost 20,000 more reservists than the IRBF (above). These reservists are concentrated in personnel support, force support training, and individual training.
Increased reserve base plus specific initiatives	<p>Adds the following initiatives to the IRBF:</p> <p>Has fewer maritime patrol squadrons to achieve a force structure of 11 active/11 reserve.</p> <p>Places all FFG-7 ships in NRF in paired-ship program (if the test of the concept is successful).</p> <p>Transfers 7 MCM-1 ships to reserve to make 7 active/7 reserve; establishes paired MHC-51 and MCM-1 NRF programs (ROS 90 days).</p> <p>Forms 3 reserve AMCM squadrons, so capability is split roughly 50/50 active/reserve.</p> <p>Establishes 18 amphibious ship RRF (ROS 75 days) from retiring ships.</p> <p>Mans hospital ship medical treatment facilities 50 percent with Selected Reservists, and transfers 3 active fleet hospitals to reserve and eliminates remaining active fleet hospitals.</p> <p>Creates mobile reserve logistic task forces to coordinate theater logistics.</p> <p>Creates STREAM and VertRep teams and MILDETS for CLF ships.</p> <p>Establishes an SSN reconstitution force in decommissioned status—about 15 SSNs by 1999.</p>
Aspin Option "C" plus a minimum reserve	Has about 65,000 Selected Reservists. Emphasizes medical, logistics, and augmentation. Uses the Aspin Option "C" active force.

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Contingency	Option C with minimum reserve	Reserve combat alternative	Base force	Increased reserved base force (IRBF)	IRBF case plus increased reserve support forces	IRBF case plus specific initiatives
MRC East						
MRC West						
MRC Europe						
MRC East plus MRC West						
Forward deployments						
Forward deployments plus countemarcotics operations						

Figure 12.1—Summary of Navy Force Capabilities

Time Required for Training

Availability and training do not present a problem for support forces in the reserve. Indeed, evidence from Desert Storm indicates that Naval Reserve support forces, if needed, are available and ready. This is consistent with the evidence available for support forces in the other Services. Once large combat units are mobilized, they may require additional workup before they can deploy. The amount of workup will depend on the tasks they are expected to perform and the degree of readiness they maintain in peacetime.

Carrier air wings in the reserves should be ready to deploy within two months, assuming current training levels. If peacetime training is changed so that these wings perform more contributory support in peacetime, an additional two to three weeks may be required for training before deployment. Combat ships in the reserve also need time to train before deployment. The time depends on the readiness level of the ship and the tasks the ship is expected to perform in the event of a crisis. For simple tasks, ships with high readiness may require as little as 30 days of training before deployment. The same ship would require longer to prepare for full sustained fleet combat operations, but this type of ship typically would not be assigned in this mission area.

Ability to Recruit and Retain Personnel

Information on recruiting and retention can be obtained from (1) analysis of the personnel flow to and from the active and reserve components as in Chapter 13. CNA supplemented this analysis with interviews to check on the ability to recruit and retain personnel across different parts of the reserve. For example, manning is difficult for shipboard billets. Expanding medical forces would be difficult, and expanding construction forces beyond planned increases also would be difficult. Recruiting for aviation personnel is not considered a problem; neither is recruiting for CONUS-based support personnel.

One implication of these potential difficulties is that proposals for an expanded NRF should be made contingent on the availability of Selected Reservists. Each addition should be made only after it becomes clear that earlier additions can be readily staffed. If active force levels come down sharply, and then level off, there probably will be enough Selected Reservists at first, but not later. Thus, there should be a willingness to adjust if necessary—for instance, by transferring parts of an expanded NRF to an inactive status.

Cost

Table 12.2 shows the average annual long-term savings for the alternatives. The administration's Base Force is the baseline from which savings are estimated; thus, by definition, the annual long-term savings for that case is zero.

The first three alternatives in the table are closely related to Aspin Option "C." They offer about \$10 billion in annual savings relative to the last four alternatives, which are closely related to the administration's Base Force. The bulk of the \$10 billion savings, however, is not due to changes in the active/reserve force mix. Rather, it is the result of the deep cuts in active Navy forces that are part of Aspin Option "C."

To estimate these potential savings, CNA used their model for projecting long-term fiscal requirements of the Department of the Navy.¹ Briefly, the model inputs are the Navy's force structure and procurement plans, and its output includes total obligation authority (TOA) projections. They used

¹Conversations with the Reserve Recruiting Section, Marine Corps Reserve Support Center, July 1992.

the model to compare the administration's Base Force to Aspin Option "C." The latter is estimated to provide annual savings of about \$9.8 billion. Almost 40 percent of those savings are the result of lower procurement costs and cuts in spending for research and development. Roughly 45 percent of the savings accrue from the decreases in operations and maintenance permitted by a 340-ship Navy. Related cuts in active duty personnel account for less than 15 percent of the savings, and cuts in the number of reservists account for only about \$0.5 billion in annual savings.

Table 12.2
COMPARISON OF ALTERNATIVES

Measure	Aspin Option "C"		Reserve Combat Alternative	Base Force	Increased Reserve Base Force (IRBF)	Increased Reserve Support Force	IRBF Case Plus Specific Initiatives
	with Minimum Reserve	Aspin Option "C"					
Response Time (weeks)							
Initial response (CVBG+ARG)	0-1	0-1	0-1	0-1	0-1	0-1	0-1
2nd CVBG	1-2	1-2	1-2	1-2	1-2	1-2	1-2
3rd CVBG+ MEB	4-5	4-5	4-5	4-5	4-5	4-5	4-5
Full MRC TF (125 ships)	5-6	5-6	5-6	5-6	5-6	5-6	5-6
2nd MRC TF	8-12	8-12	8-12	8-12	8-12	8-12	8-12
Reconstitution	8 years	8 years	3 years	2 years	2 years	2 years	2 years
Forward Deployment (%)							
	100	100	100	100	100	100	100
Includes Capability?							
Fwd. dep.+ CN	No	No	Yes(-) ^a	Yes	Yes	Yes	Yes
2 MRCs+CN	No	No	Yes(-)	Yes	Yes	Yes	Yes
Recruit/retain	Yes	Yes	Questionable	Yes	Yes(-)	Yes(-)	Questionable
Average Annual Long-Term Savings (in billions of 1992 dollars)							
	10.6	9.8	9.4	0	-0.25	-0.25	0.60
Personnel (in thousands)							
Active SELRES	432	432	441	501	501	498	489
	65	112	118	118	142	161	154

^aThe minus sign indicates that a capability is not quite sufficient or is uncertain.

As noted, two options are closely related to Aspin Option "C." They are the minimum reserve option, and the reserve combat alternative. By eliminating 48,000 reservists, one reserve carrier air wing, and nine reserve maritime pa-

trol squadrons, the minimum reserve option would save about \$800 million annually, on top of the savings already generated by Aspin Option "C."

The reserve combat alternative offers less savings, because keeping 50 FFG-7s in the NRF incurs costs. CNA estimated that these additional costs total almost \$400 million annually.

The base force and the increased reserve base force (IRBF) are closely related; the main difference is that the latter has an additional 24,000 reservists. CNA estimated that these extra reservists cost about \$250 million per year.

Two other options also are closely related to the IRBF: the increased reserve support force, and the specific initiatives. As discussed earlier in the report, the additional reservists in the increased reserve support force option replace a smaller number of active duty personnel. Thus, the overall personnel costs do not change. Accordingly, the option generates no savings relative to the IRBF.

CNA estimated that the last option, specific initiatives, would generate more than \$0.5 billion in savings yearly, if all the initiatives were enacted. They expect some of the initiatives to generate costs (shown as negative savings) rather than savings, because they add reservists without cutting active duty personnel. Such is the case for the initiatives that would assign fleet hospital manning to the Naval Reserve, man hospital ships with reservists, create crisis-response logistic task forces, create teams for duty on CLF ships, and add reservists to the training carrier *Forrestal*. There would be no cost associated with these initiatives, however, if additions in one area were offset by reductions in other areas where large reserve participation is no longer necessary.

CNA estimated that other initiatives will result in sizable savings, however. In general, these are the initiatives that would replace active aircraft squadrons with reserve squadrons, and put active Navy ships in some form of reserve or mothballed status. Doing so offers substantial savings both in personnel and in operations and maintenance costs.

Reconstitution

Some of the options include more ships or aircraft than appear necessary for two MRCs but offer a reasonable way of storing capability against the possibility of a major reconstituted (rebuilt) threat. Capability to meet a reconstituted threat does not need to be kept in the reserve; less expensive means are

available. For example, the reserve combat alternative retains submarines in defueled layup. Retaining these submarines allows the Navy to prepare for a reconstituted threat much more rapidly than the options in which the submarines are totally scrapped.

Summary of Navy Evaluation

Table 12.2 also provides a detailed comparison of the force alternatives. It is organized so that the options with the smallest reserve are on the left and those with the largest reserve are on the right. The alternatives are similar in their ability to meet a contingency involving two MRCs similar to the Persian Gulf War. They differ in their ability to support reconstitution, carry out counternarcotics operations, and recruit and retain personnel.

CNA concluded that, within the range of 340 to 450 active ships, the current reserve force structure and end-strength far exceed what is necessary to conduct two MRCs. This analysis did not consider an active Navy smaller than that proposed by Congressman Aspin's Option "C" (340 ships). If the active Navy were to dip below that number, it would be difficult to conduct two near-simultaneous contingencies without reserve combat forces being used in some capacity.

The alternatives span a large range of active forces (from about 450 ships to 340 ships) and reservists (from 65,000 to 161,000). CNA found that all of the alternatives were able to support the planning scenarios, except those scenarios that require 11 deployable carriers. Furthermore, a minimum of 65,000 reservists, primarily in the support role, are needed to support these scenarios. Some number of reservists above this minimum number might be justified when uncertainty about the DPG scenarios is considered. For instance, if the two near-simultaneous crises lasted significantly longer than DPG scenarios assume or carrier aircraft attrition became significant, additional support and reserve combat forces might be needed. Having more reservists than the estimated minimum level would provide a hedge against the uncertainty inherent in the DPG scenarios, at a low cost. Having additional reservists also might be justified on the basis of peacetime contributory support to the active force.

The effectiveness of reserve capability depends not only on readiness (equipment type and condition, availability of the right personnel, training) but also on whether the capability can be useful—either in a crisis or in peacetime. The reserve offers little in forward-deployed capability. It does expand the Navy's capability in many missions for wartime and crisis re-

sponse and can provide contributory support in peacetime in areas having intermittent workloads (e.g., peakloads) or schedulable tasks such as routine medical care.

Fleet support and shore-based support are promising areas for an increased or restructured reserve, especially personnel support, individual training, and fleet support training. Either active or reserve personnel can contribute in these areas. A one-for-one substitution is not appropriate. Because reservists are available for only a little over a month per year in peacetime, several reservists would be needed to carry out the workload of one member of the active component. But costs could still decrease if reservists were used efficiently to handle peakloads. As a result, the number of reservists might be in excess of wartime requirements—which would require a change in the way reserve manpower requirements are usually perceived. Statutory change (e.g., in Title 10 USC 262 and sections in the code of federal regulations on training of reservists) to make clear that peacetime contributory support is sufficient justification for reserve billets would allow the use of the reserve in support areas.

Almost any capability or type of ship can be placed in the reserve. Constraints, however, may argue against putting particular capabilities (such as submarines) or missions (such as peacetime forward deployment) in the reserve. The active manning for these capabilities might still need to be so high that little money would be saved.

Evaluation of Alternative Marine Corps Force Structures

Table 12.3 presents the ten alternatives that CNA evaluated for the Marine Corps (as described in Chapter 10), using the following criteria:

- Capability of responding to a Major Regional Contingency (MRC),
- The forces remaining after response to MRCs,
- Forward-presence/rotation capability,
- Reserve force sustainability,
- Transition costs in comparison with the DoD Base Force,
- Total force size, and
- Steady-state (long-term annual) costs in comparison with the DoD Base Force.

Table 12.3
**ACTIVE/RESERVE FORCE MIX ALTERNATIVES REMAINING
FOR DETAILED ANALYSIS**

4 MEFs	3.5 MEFs	3 MEFs	2.5 MEFs
2.5/1.5	2.5/1	2.5/0.5	2/0.5
2/2	2/1.5	2.2/0.8	1.5/1
		2/1	
		1.5/1.5	

MRC Response Capability

Perhaps the most important aspect of all the alternative force structures is their ability to carry out their wartime missions. This ability depends on two main factors: how much force is required and how quickly it is needed. To measure the capability of the alternatives, CNA used four hypothetical scenarios for fighting MRCs from the Defense Planning Guidance (DPG). They call these scenarios MRCs I, II, III, and IV.² MRCs I through III are single-conflict scenarios in various parts of the world. MRC IV is a concurrent-conflicts scenario. In addition, MRC IV includes two options—option 1 requires one more MEB than option 2.

The DPG scenarios list which forces are required and when they must arrive in theater. Forces for each scenario are divided into two main groups: the initial response force (IRF), which must be on scene quickly; and the decisive force (DF), which arrives later.³ By combining estimated training times with estimated mobilization and transportation times, CNA calculated the range of reaction times (how long before forces arrive in theater) for MEF equivalents in each alternative.

Forces Remaining After Response to Contingencies

To determine an alternative force structure's ability to respond to Marine Corps commitments similar to those during the Persian Gulf War, CNA also examined the forces remaining after deploying both the IRF and DF for each MRC. Although the units differ slightly between alternatives with the same total number of MEFs, supportability generally depends on total force size.

²MRC I corresponds to MRC-East, II to MRC-West, III to MRC-Europe, and IV to Concurrent Contingencies.

³This is true for all but MRC IV. In this scenario, the Marine forces are IRFs for both contingencies.

Alternatives with a total of 4 MEFs (2.5/1.5 and 2/2) could support three MEBs after deploying forces for MRC I or MRC II. They could support two MEBs after deploying forces for MRC III or option 2 of MRC IV, or one MEB after deploying forces for option 1 of MRC IV.

Alternatives with a total of 3.5 MEFs (2.5/1 and 2/1.5) could support two MEBs after deploying forces for MRC I or MRC II. They could support one MEB after deploying forces for MRC III or option 2 of MRC IV, or no further commitments after deploying forces for option 1 of MRC IV.

Alternatives with a total of 3 MEFs (2.5/0.5, 2.2/0.8, 2/1, and 1.5/1.5) could support an MEB(-) after deploying forces for MRC I or MRC II. They could support no further commitments after deploying forces to MRC III or option 2 of MRC IV. These alternatives do not have enough forces for option 1 of MRC IV.

Alternatives with a total of 2.5 MEFs (2/0.5 and 1.5/1) could not support any further commitments after responding to any of the MRCs. These alternatives do not have enough forces for MRC III or MRC IV.

Forward-Presence/Rotation Capability

The Marine Corps maintains forward-deployed forces to support the peacetime forward-presence mission. Units that deploy in the special-operations-capable Marine expeditionary units (MEUs(SOC)) or to Okinawa in the unit deployment program (UDP) are away from their families for at least six months at a time. Units also deploy on major JCS-directed and other exercises, decreasing the amount of time they spend at home. Experience has taught the Marine Corps that, if a Marine spends too much time away from home, morale suffers, readiness declines, and manpower retention decreases. Having a rotation base allows deployed time to be kept within what the Marine Corps believes are reasonable bounds. Although they did not use rotation requirements to develop the alternative force structures, the rotation capability included in each alternative is important.

Peacetime forward-presence and rotation capability are a function of active forces. The more active MEFs there are in an alternative, the more rotation capability that alternative has. All of the alternatives can maintain two forward-deployed MEUs. Then, as active force size increases, the ability to maintain additional forward-presence forces elsewhere increases proportionately.

Reserve Force Sustainability

The Marine Corps recruits large numbers of prior service Marines for the SMCR. It believes that, to have a quality force, at least 30 percent of enlisted personnel and all of the officers should have prior service experience.⁴ Currently, about 40 percent of the enlisted and virtually all of the officers in SMCR units have prior service experience.

Sustainability of the reserve forces is defined as the predicted ability to maintain this prior service percentage in the SMCR. NDRI is using its models to assess quantitative aspects of sustainability. According to the qualitative estimates,⁵ the 2.5/1, 2.5/0.5, 2.2/0.8, and 2/0.5 alternatives should be able to maintain the desired level of prior service Marines in the SMCR. Other alternatives may not be able to do so; if not, Marine Corps policy, particularly for officers, may have to be changed.

Transition Costs

When force structure is changed, there are one-time costs (i.e., transition costs) associated with activating and deactivating units. In the short term, transition costs may erase the expected savings from reducing force structure. Unfortunately, transition costs are difficult to compute, particularly for large structure changes. Major changes may include costs associated with base closings, such as environmental cleanup, and savings associated with the sale of property. Furthermore, there may be one-time separation pay if there are major personnel reductions, and other costs associated with disposing of or decommissioning equipment.

The end result is that computing transition costs accurately is difficult unless a specific plan is available. The only data CNA had on transition costs are from their study that computed the transition costs of transferring two specific types of active units to the reserve: an infantry battalion and a helicopter squadron.⁶ Using these costs as a model, they computed order-of-magnitude estimates for transition costs as a difference between the current (FY 1993) structure and the various alternatives.

⁴Conversations with staff officers at MARRESFOR, June 1992.

⁵Conversations with reserve recruiters at the Marine Corps Reserve Support Center (MCRSC), July 1992.

⁶Peter F. Kostiuk, *Cost Analysis of Selected Units in the Marine Corps Active and Reserve Components*, CNA Research Contribution 519, January 1984.

Total Force

To this point, CNA have focused on the FMF and SMCR, the principal combat organizations of the Marine Corps. To these, they added non-FMF components, which include the supporting establishment (e.g., management headquarters, bases and stations, and training commands) and other operating forces such as Marine security guards, to compute the total number of Marines in each alternative force structure.

Using the FSPG results⁷ as a starting point, CNA estimated the future non-FMF manning. To this, they added the active duty support for each alternative's SMCR component and a 15 percent "overhead" consisting of prisoners, patients, transients, and trainees (P2T2).

CNA made two adjustments to the SMCR components of the alternatives. First, they added individual mobilization augmentees (IMAs) to each SMCR structure. Second, they computed the number of full-time support (FTS) personnel in the SMCR. FTS is a component of SMCR structure, but it is not added to the SMCR unit structures. They computed it separately for costing purposes (an FTS reservist costs more than a drilling reservist).

Steady-State Costs

Force structure costs can be categorized in four groups: direct unit costs, direct support costs, infrastructure costs, and transition costs. Transition costs have already been examined. In computing long-term annual or steady-state costs, CNA address direct unit costs and part of the support and infrastructure costs.

CNA had no direct data on support or infrastructure costs other than the number of personnel that are not in FMF or SMCR units. Thus, part of the total cost of the Marine Corps is not included in their cost computations. However, support and infrastructure costs other than those for personnel should be about the same because the alternatives do not change the support structure. For this reason, they computed cost differences rather than overall service cost.

⁷Headquarters, Marine Corps, Master Briefing Book, USMC 2001—A Concept for the Employment of Marine Corps Total Force in Joint Operations into the 21st Century, 1991.

This holds true for all alternatives except those with 1.5 active MEFs. For those two alternatives, closing bases and stations in Okinawa and Japan would result in additional savings beyond these computed cost differences. Those two alternatives are the least expensive, so the additional savings would not change their standing relative to the other alternatives.

Steady-state costs depend on total force size and the active-reserve split. Alternative force structures with a higher proportion of reserve forces are generally the least expensive. In some cases, alternatives with more total forces cost less than smaller alternatives with a higher proportion of active-duty forces. For example, the 2/1.5 alternative has 0.5 MEF more in the total force than the 2.5/0.5 alternative, but the 2/1.5 alternative costs less because of its higher proportion of reserve forces.

Summary of Marine Corps Comparison

Each alternative force structure is identified by the number of war-strength active/reserve MEFs it can support. Table 12.4 gives the total number of active and SMCR personnel in each alternative. The total numbers of active and SMCR personnel are almost constant within groups of alternatives having the same total number of MEFs. Slight variations within a group are due to differences in active duty support to the SMCR and in P2T2.

Figure 12.2 provides a scorecard summarizing the results for the following criteria:

- The ability of the alternative to respond to the MRCs, plus have some forces left over for other commitments,
- The ability of the alternative to meet all MRC requirements on time,
- The ability of the alternative to meet only the IRF requirements for each MRC,
- The assessment of each alternative's rotation capability,
- The ability to sustain the goal of 30 percent prior service Marines in the SMCR,

Table 12.4
MANPOWER SUMMARY FOR EACH ALTERNATIVE FORCE STRUCTURE

Alternative	Personnel (1,000s)		
	Active	SMCR	Total
4 MEFs			
2.5/1.5	180	63	243
2/2	159	82	241
3.5 MEFs			
2.5/1	176	42	218
2/1.5	156	62	218
3 MEFs			
2.5/0.5	173	23	196
2.2/0.8	159	35	194
2/1	152	42	194
1.5/1.5	131	63	194
2.5 MEFs			
2/0.5	149	23	172
1.5/1	128	43	171

- The one-time transition costs as differences from the DoD Base Force (in FY 1993 dollars), and
- The long-term cost as differences from the DoD Base Force and the alternative (in FY 1993 dollars).

The best alternatives in each criterion are identified by a light shading; reasonably good alternatives are identified by the darker shading. For example, because the alternatives with 4 MEFs have the best capability to respond to any MRC and have forces left for other commitments, they have light shading in the "Forces for MRCs plus" column. The alternatives with 3.5 MEFs have forces left after responding to all of the scenarios except option 1 of MRC IV, so they have darker shading. The remaining alternatives would have virtually no forces left after responding to MRC III or IV.

Implications for Choosing an Alternative

The columns in Figure 12.2 address each aspect of the analysis separately. Deciding on a particular alternative will involve consideration of all aspects. This is a complex process, but the choice boils down to a tug-of-war between steady-state cost and capability.

RAND#P051-121-1182

Alternative	Forces for MRCs plus	MRCs on time	IRFs only	Peacetime forward presence	Sustainability	Transition cost (\$ million)	Steady-state cost (\$ million)
2.5/1.5						530	1,700
2/2						950	600
2.5/1	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	100	1,000
2/1.5	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	490	100
2.5/0.5		■■■■■	■■■■■	■■■■■	■■■■■	80	500
2.2/0.8		■■■■■	■■■■■	■■■■■	■■■■■	0	0
2/1			■■■■■	■■■■■	■■■■■	90	-600
1.5/1.5						530	-1,600
2/0.5					■■■■■	-40	-1,100
1.5/1						90	-2,300

■ Meets all requirements ■■■■■ Meets most requirements

Figure 12.2—Summary for Marine Corps

If minimum cost is the principal consideration, the 1.5/1 alternative is best. It saves over \$2 billion compared to the DoD Base Force. But its capability is commensurate with its cost. It cannot respond to any contingency on time, does not have enough forces for MRC III or IV, cannot even meet the IRF time line for MRCs II and III, and has little ability to maintain peacetime forward-presence forces.

The 1.5/1.5 alternative provides the next level of capability at a slightly higher cost. This alternative has enough forces to respond to all contingencies (except MRC IV option 1) and costs about \$1.5 billion less than the DoD Base Force. But again this alternative has many of the same shortcomings as the 1.5/1 alternative: It cannot respond to any contingency on time, cannot meet the IRF time lines for MRCs II and III, and has little ability to maintain peacetime forward-presence forces.

If the ability to meet the IRF time lines is sufficient, the 2/1 alternative can do so for about \$0.5 billion less than the DoD Base Force. This alternative cannot, however, meet the IRF time line for the second contingency of MRC IV. It can support a level of peacetime forward presence about midway between that of the 1.5-active-MEF alternatives and the current levels.

If it is important to meet all the time lines, including deploying the IRF for the second contingency of MRC IV on time, the 2.5/0.5 alternative is the lowest-cost alternative that can do so. This alternative costs about \$0.5 billion more than the DoD Base Force. It could maintain the current level of peacetime forward presence. The 2.5/0.5 alternative does not, however, have enough forces for MRC IV option 1.

If the ability to respond to contingencies and have some forces left for other commitments or to meet unexpected crises is important, alternatives with 3.5 or 4 MEFs in the total force provide the best capability. Alternatives with 4 MEFs are generally the most expensive, and they are also the least likely to be able to sustain the desired level of prior service Marines in reserve forces. Alternatives with 3.5 MEFs provide a good compromise between total force size and capability. They can respond to an MRC and still have at least a Marine expeditionary brigade left for all contingencies except option 1 of MRC IV. But even for MRC IV, the 3.5-MEF alternatives provide a degree of flexibility: To retain a Marine force to respond to some unforeseen crisis, option 2 of MRC IV can be executed. If responding to a crisis is less important than getting the largest force to the contingency, option 1 can be executed.

The 2.5/1 alternative provides the capability to meet all MRC time lines and the ability to maintain the current levels of peacetime forward presence; the less expensive 2/1.5 alternative cannot do so. Furthermore, the 2.5/1 alternative is more likely to meet reserve force sustainability goals. It would cost about \$1 billion more than the DoD Base Force.

13. Personnel Sustainability Issues for Future Reserve Forces¹

Introduction

As part of the current study, Congress mandated that we consider "the sustainability of reserve recruiting and retention."² The key issue here is the ability of the reserve components to sustain a base of personnel with prior active military service. This is vital because of the effect that such personnel have on reserve readiness. Our assessment of this issue indicates that the drawdown of military forces will, in and of itself, create problems for the reserves to recruit prior service personnel. Further, our assessment of alternative force structures indicates that the larger the proportion of reserve forces in a force structure, the greater the recruitment shortfall for prior service personnel will be.

In this chapter, we describe the current situation and the importance of prior service personnel for reserve readiness, what determines the percentage of prior service personnel in the reserves, and the status of Services as they enter the drawdown; we evaluate future sustainability under the alternative force structures; and we discuss policy options for improving the reserve components' ability to recruit and retain prior service personnel.

The Importance of Prior Service Personnel for Reserve Readiness

In recognition of the importance of prior active personnel in providing an experience base for the reserves, Congress enacted the "Army National Guard Combat Readiness Reforms Act of 1992"³ establishing minimum per-

¹This chapter is largely drawn from a more complete analysis of the problem given in David Grissmer et al., *Personnel Considerations in Force Downsizing and Restructuring* (forthcoming).

²Sec. 402, *op. cit.*, p. 64.

³National Defense Authorization Act of Fiscal Year 1993, House Report 102-966, p. 231.

centage of prior active duty personnel in the Army National Guard: By September 30, 1997, 65 percent of all officers and 50 percent of all enlisted members should have at least two years of active duty.⁴

How Military Experience Differs for Prior Service and Non-Prior Service Reserve Personnel

One measure of the difference in military experience between prior and non-prior service personnel is simply to compare days spent in military service. This measure focuses specifically on the amount of time available for practicing military skills. It weights a reserve year of 38 days of service differently from an active year assumed to be 225 days, to account for the substantial difference in available training time and presents a more realistic picture of the *effective* experience of reservists.

Our results show that effective experience in the reserve components can vary by as much as one-half from nominal experience, as measured by the more traditional years of service (YOS) measure. This relative lack of effective experience in the reserves can be particularly troublesome in the higher ranks. In order to highlight the difference in experience levels of *non-prior service* versus *prior service* personnel in the various components, we show in Figure 13.1 comparative measures of the average military experience (or FETY) of prior and non-prior service personnel for selected senior officer and enlisted paygrades in the FY 1989 force. In order to highlight the difference in experience levels of *reserve* versus *active* personnel, we also show the military experience of active force personnel in similar grades.

The results are quite revealing. The data show that, regardless of component, even prior active service personnel in reserve positions have significantly less military experience than active personnel at similar paygrades. Moreover, non-prior service personnel in senior positions have less than one-half the effective full-time military training of prior service personnel. This is the case for all components. This means that a substitution of non-prior ser-

⁴The congressional meaning of the term "prior service" is different from the way the term is generally used in DoD reports. The term prior service accession currently includes all accessions who have either prior active or reserve service. Thus, if an individual separates from reserve service and returns, he/she is labeled as prior service. There are a significant number of prior reserve service individuals and they constitute more than 25 percent of prior service accessions for the Army components. This definition is currently used by all services and reserve accession reports. The congressional mandate is concerned only with the proportion of personnel who have prior *active* experience. These proportions will be lower than the conventional definition. We will use the new definition and believe that it is the appropriate measure for tracking changes in reserve personnel readiness.

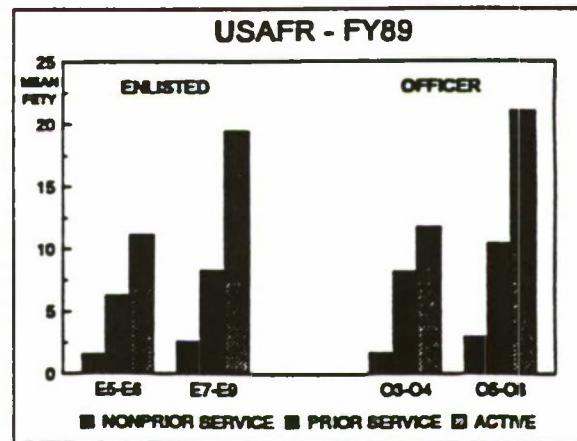
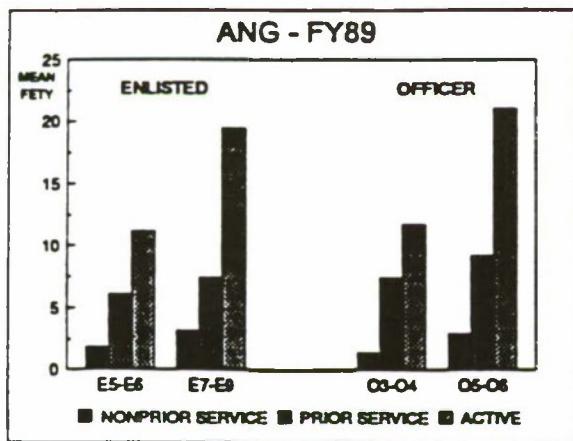
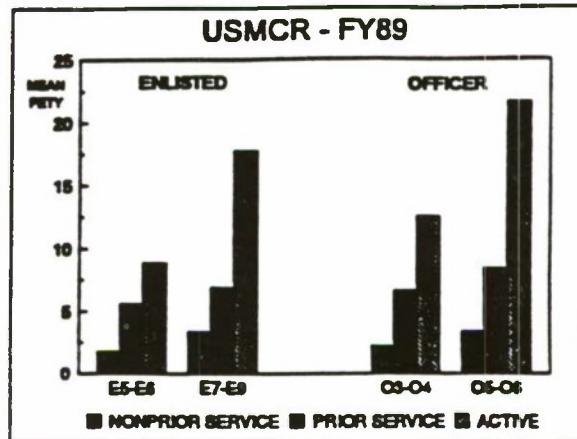
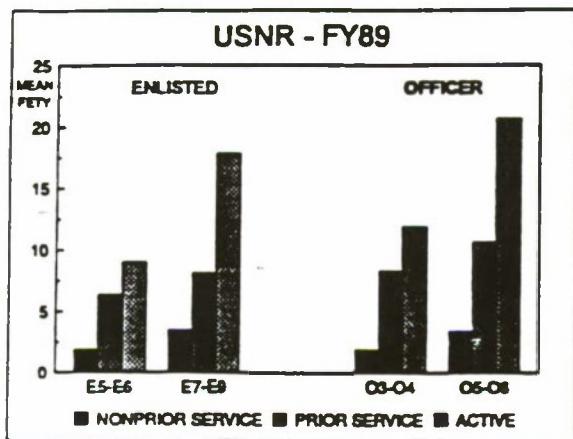
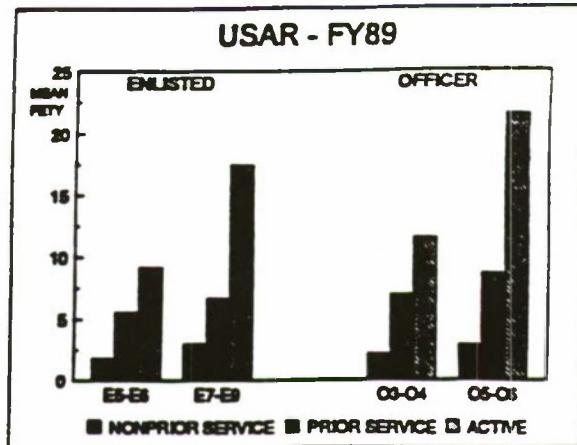
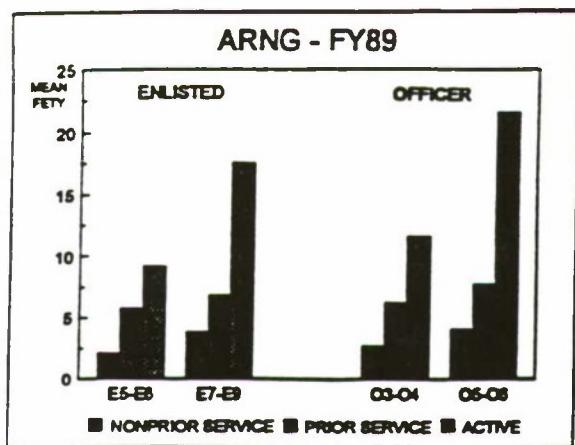


Figure 13.1—Mean FETY Among Senior Paygrades in the Active and Reserve Components: FY 1989

vice for prior service personnel in senior ranks would reduce military experience by more than one-half.

Skill Qualification

One of the key questions in assessing the capability of the reserves is the skill qualification levels of their personnel. It is important to see how prior service personnel are utilized by the components in order to assess the effect of the potential loss of prior active duty personnel. One indicator of the utilization of prior service personnel is the overall skill qualification level. If prior service personnel do not utilize active skills, then retraining is required and lower skill qualification levels will occur.

Figure 13.2 compares officer and enlisted skill qualification levels for both active and reserve components in FY 1989.⁵ The Air Reserve Component maintains skill qualification levels of nearly 90 percent, which is equivalent to the active Air Force. However, the Army and Marine components have less than 60 percent of officers qualified in their primary skill area—a level significantly below their active force counterparts.

For enlisted personnel, all reserve components are below their active counterparts, although the difference is less marked than for officers. The Air Reserve Component again maintains the highest level of skill qualification among reserve components—80 to 85 percent which is only slightly below the skill qualification rate of the active Air Force. The Navy maintains a 70 percent skill qualified level—the lowest among reserve components and about 13 percentage points lower than the active Navy. The Army and Marine components maintain skill qualification levels of 75 to 80 percent. For the USMCR, this is only slightly lower than the active component, while the Army components lag the active by 10 to 13 percentage points. These lower skill qualification rates are partly caused by high turnover levels. Clearly, strong incentives are needed to prevent the loss in training and experience as reservists join the force and change units and skills.

Do the Services Currently Meet the Goals?

While Congress enacted prior service goals only for the Army National Guard, we can compare the prior active duty content of each service to the

⁵See Grissmer et al. for a more detailed discussion of the methodology for deriving these rates.

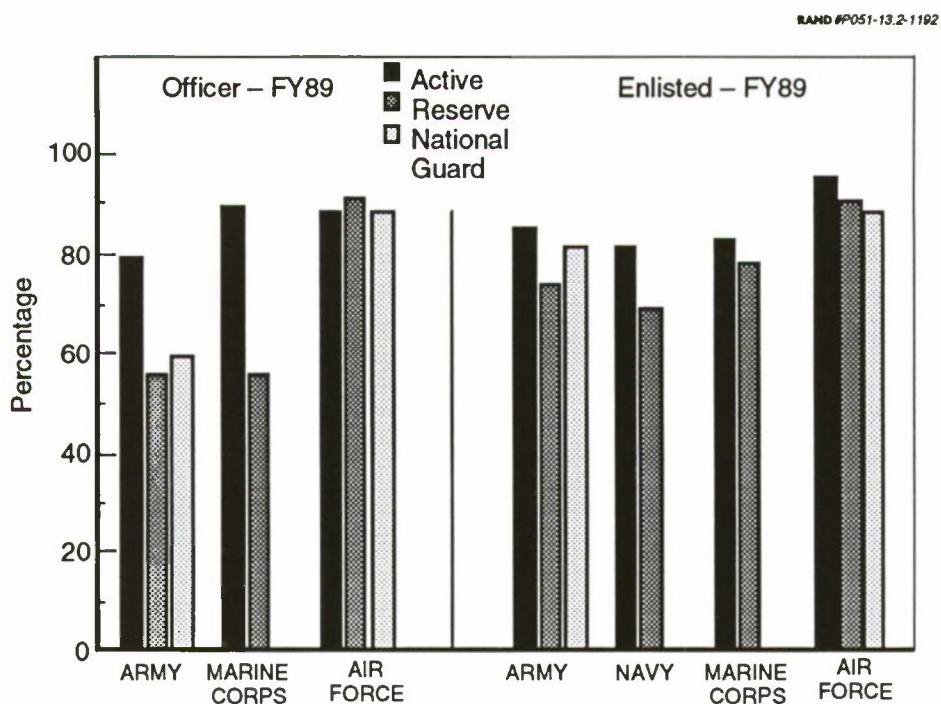


Figure 13.2—Percentage Skill Qualified in Active and Reserve Components: FY 1989

goals as a benchmark. However, if the goals are extended, they may be modified depending on the primary missions and skill content of each Service. Figure 13.3 shows that in FY 1989 the ARNG officer and enlisted fell far below the goals, as did the USMCR enlisted force. Army National Guard (ARNG) officers were at 38 percent compared to a goal of 65 percent and ARNG enlisted were at 36 percent compared to a goal of 50 percent. The U.S. Naval Reserve (USNR) and U.S. Army Reserve (USAR) officers were nearly at the goal as were the USNR enlisted.⁶ The USAR enlisted force was somewhat below the goal while the Air components (ANG + USAFR) far exceeded the goals for both officer and enlisted.

The drawdown will reduce the number of prior active service personnel making it even more difficult to meet the goals. Clearly, a major issue in restructuring will be in achieving these goals and an understanding of what determines prior active duty participation in the reserve will be critical.

⁶There is some evidence to indicate that our data substantially underestimate the percentage of prior service personnel among USNR enlisted—that percentage may be closer to 70 percent than the 50 percent our data show.

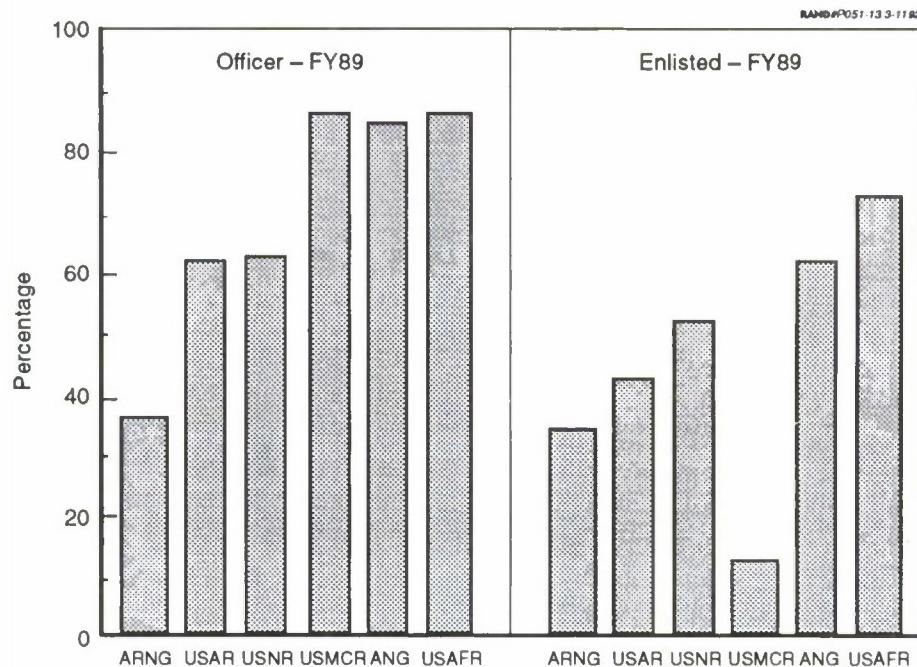


Figure 13.3—Percent Prior Active Service Among Part-Time Officer and Enlisted Personnel: FY 1989

Determinants of Prior Service Percentage in Reserve Inventory

The four critical factors in determining the relative proportion of prior active service personnel in each reserve component are the relative size of the active and reserve forces, the rate of active duty losses, the propensity of veterans to join the reserves, and their retention. However, it is important to also take into account whether prior service personnel utilize their active skills. If large proportions do not, then the effective utilization of prior service personnel is lower than our measures indicate. We will discuss the four factors determining prior service proportion.

Relative Size of the Active and Reserve Forces

As a rule, it will be easier to man reserve forces with prior service personnel if the ratio of active to reserve forces is large. Figure 13.4 shows this ratio for FY 1989 force levels. The data show the USMCR has the most favorable ratios for manning with prior service personnel with over 6 active officers for

each reserve officer position and over 4 active enlisted personnel for each reservist; the Navy comes a close second with 2.5 officers and 4 enlisted personnel for each reservist. The Air Force has a ratio of 3.2 for the officer corps and 2.9 for the enlisted force. The Army has by far the lowest ratios of 1 for both officers and enlisted personnel. Based on this measure alone, we would infer that the USNR and USMCR would have the easiest time finding prior active service personnel to fill reserve positions and the Army would have the hardest time.

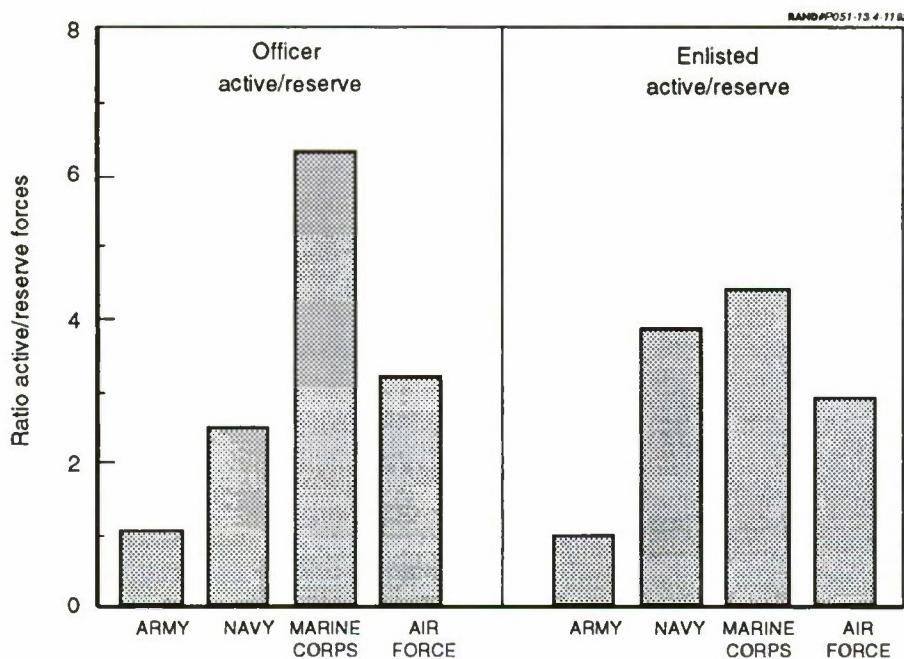


Figure 13.4—Ratio of Active to Reserve Strength by Service: FY 1989

These factors partly explain the lower prior service percentage of the ARNG and USAR. At such large reserve force sizes, there probably are not enough active veterans to fully man higher-level positions with prior active service personnel. It also offers a partial explanation for why the percentage of prior service officers is high in the Air Reserve Component and the USMCR; their active counterparts have 4 to 6 officers for each reserve position. Clearly, however, this is only one piece of the picture. Other factors also play a role in determining prior service utilization.

Active Loss Rates

While the size of the active service is a key underlying determinant of prior service percentage, it is the size of the losses that drive the availability of prior service personnel. Other things equal, higher active loss at End of Term of Service (ETS) will make reserve prior service manning easier. Active loss rates vary markedly for officers and enlisted personnel and by service (see Figure 13.5). However, it is important to note that the loss rates do not have the range of variation of the active/reserve size ratios so they will be a secondary indicator of prior service availability. Officers have much lower loss rates than do enlisted, so this would make reserve officer manning more difficult and require higher recruiting proportions among losses to maintain similar prior service accession proportions. The Air Force and Navy also have lower enlisted loss rates than do the Army and Marine Corps making prior service personnel less available to these services.

Propensity of Active Veterans to Join the Reserve

The propensity of active veterans to join reserve service will also determine prior service utilization. This propensity will depend on the types of positions available, the quality of training and organization of the component, and the compatibility with civilian job and family life. We present historical rates of active veterans joining reserve forces. However, the empirical evidence on actual enlistment rates may underestimate the true propensity because of two factors. Not all who wish to enlist can find positions, either because there are no openings in nearby units or there are no nearby units of the appropriate component. In addition, the occupational requirements in the reserve components may differ significantly from the occupations in the active components, and this may also create problems when trying to enlist in the reserves. If no openings exist, then the observed rate of joining will underestimate the actual propensity to enlist. For components with fewer units in the nation, the observed joining rate will also underestimate the proportion desiring to enlist. This will be particularly true for the USMCR and USNR, which do not have units as widely dispersed as the ARNG and USAR. If the reserves are drawn down and units closed, then the joining rate will decline even though the propensity may remain the same. Thus, observed joining rates need to be interpreted with caution.

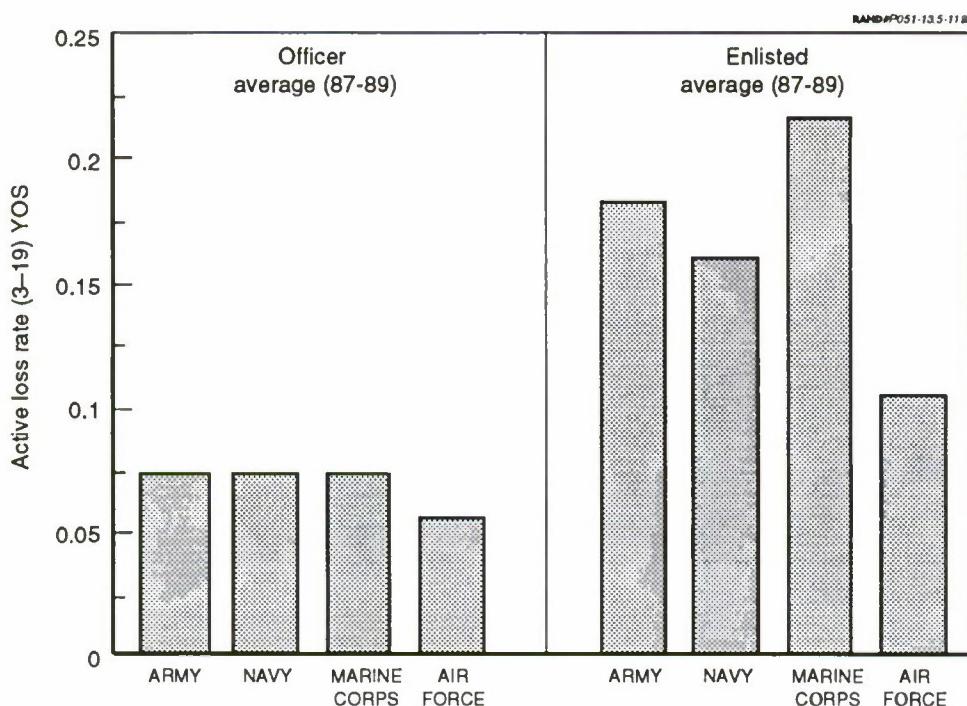


Figure 13.5—Active Loss Rates by Service Among Officers and Enlisted Personnel: FY 1989

Figure 13.6 shows the proportion of active FY 1984 losses with four and eight years of service who joined reserve components by FY 1989.⁷ Approximately 40 to 45 percent of the Army, Navy, and Marine Corps officers who left at 4 years joined the reserve components within this six-year period compared with only 21 percent of Air Force officers. Among eight-year losses, 57 percent of Navy officers and 37 to 43 percent of other Service losses joined the Selected Reserve. The Air Force again has the lowest rate of accession among this group; however, the rate is considerably higher among eight-year losses than among the four-year losses.

⁷Although we do not show the data here, most of those joining the reserve components tend to join the component that is the reserve counterpart to the active service from which they separated. The exception is the ARNG which recruits about 13 percent of prior service personnel from the active Marine, Navy, or Air Force. This is probably due to the greater geographical coverage of ARNG units.

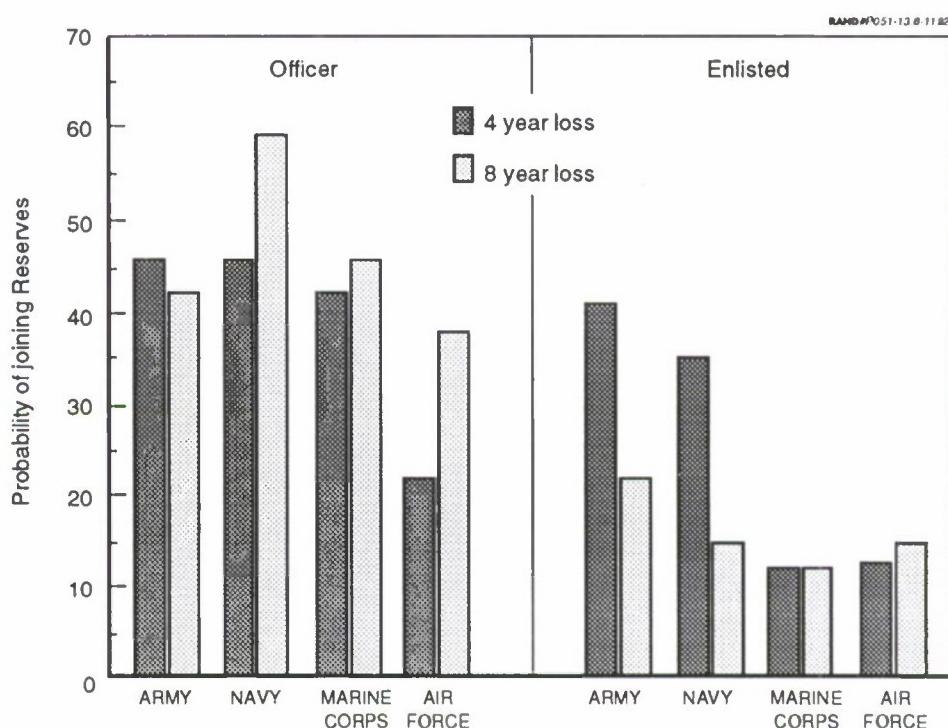


Figure 13.6—Probability of Joining the Selected Reserve by Service and Selected YOS Groups: FY 1984 Losses

For enlisted personnel, the accession rates are significantly lower than the officer rates in almost every case. The Army and Navy reserve components enlisted 41 percent and 34 percent of their four-year losses, respectively, with the Air Force and Marine Corps enlisting only 12 percent of their losses. Among eight-year losses, the proportions regained were much smaller for the Army (20 percent) and for the Navy (14 percent). This shows that there is probably a great deal of experience among the more senior Army and Navy losses that appears to be lost to the reserve. There may be individuals who do not find more senior positions, perhaps because non-prior service individuals are filling them. Among Air Force and Marine Corps losses, there appeared to be little difference in the rate at which eight-year losses enter compared to four-year losses.

In order to provide a more general measure of the propensity to enlist in the reserve, we aggregated all losses with 4 to 15 years of service and then tracked them forward to see how many had joined the Selected Reserve by FY 1989. The results are shown in Figure 13.7. Among this group, Navy officers appear to be the most likely to join, with almost 60 percent entering

the reserve components, followed closely by the Army (50 percent) and Marine Corps (45 percent). The Air Force ranks fourth with only about 30 percent of Air Force officers joining the reserve.

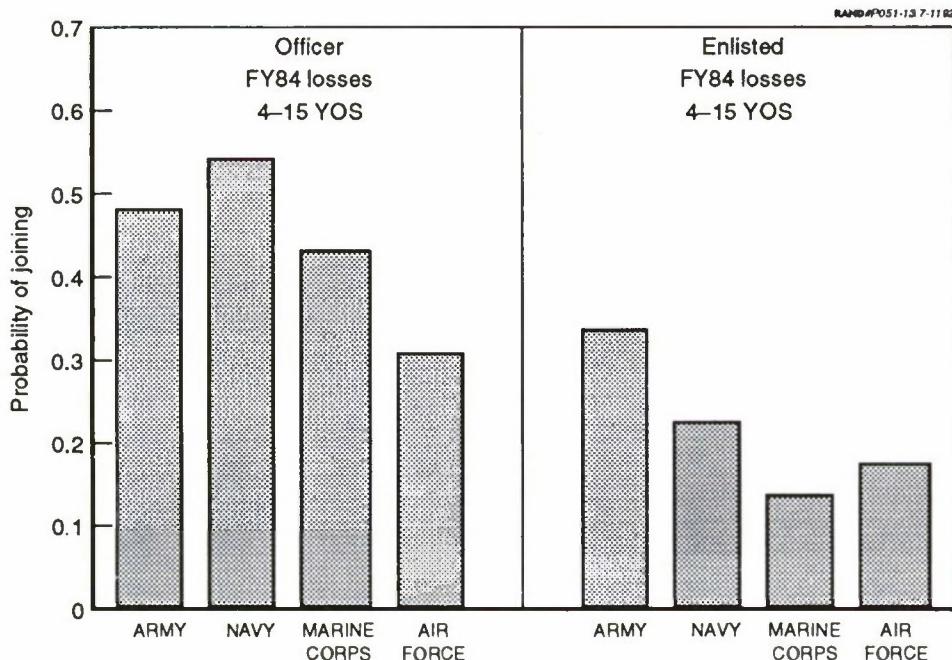


Figure 13.7—Probability of Joining Within Six Years After Separation by Service: 4-15 YOS Groups, FY 1984 Losses

These data offer some interesting implications when we combine them with information on the size of the reserve component. If we assume that Air Force personnel have the same propensity to enlist as Army personnel, then our data would suggest that the Air Force components are using much less than one-half of currently available prior service officer or enlisted personnel. Even given the fact that Air Force units may not be available in as many locations as Army units, the data show a substantial cushion of prior service personnel available, should openings be available.

For enlisted personnel, the Army is currently utilizing the largest share of eligible veterans with about 30 percent of eligible losses joining reserve components. The Navy utilizes the next largest share with about 20–25 percent of eligible losses joining, while the Air Force and Marine Corps components enlist about 15 percent and 10 percent, respectively. If we again assume that the Army proportions are supply constrained, then there probably exists a large cushion for the Air and Marine components and a smaller cushion for the USNR (although the smaller proportions for the Navy and Marine may also reflect a smaller area of geographical coverage by their reserve units).

The data also show that the Army, Navy, and Marine Corps are all using almost one-half of all officer losses with 4 to 15 years of service. The Navy and Army both have significant proportions of officer positions filled by non-prior service personnel, and this is probably due to supply constraints. If so, this indicates that a little less than one-half of departing active officers voluntarily want to join the reserve components.

In our analysis of long-term reserve sustainability, we assume that the Army, Navy, and Marine Corps reserve components are currently utilizing all officers with a propensity to enlist, and that increases in supply would have to come from stronger incentives to join the reserve or mandatory terms of reserve service for active veterans.

In our analysis, we assume the accession rate among Army enlisted losses can be raised only through increased incentives or mandatory terms of reserve service connected with active enlistment. However, earlier analysis has shown that the accession rate of prior service personnel, at least in the Army, is only mildly responsive to increases in drill pay and somewhat more responsive to affiliation pay bonuses. For example, Marquis and Kirby (1989) found that a 10 percent increase in drill pay would raise the proportion joining sometime within a year of leaving by about 11.7 percent.⁸ Thus increased incentives are likely to have some effect in raising the accession rate but additional increments will be harder and harder to get.

Retention of Reservists with Prior Active Military Experience

The reserve forces could compensate for smaller active force sizes and fewer prior service accessions if they could reduce prior service loss rates. It is clear that separation rates vary significantly across components and by type of personnel (see Figure 13.8). The Air Reserve Component has significantly lower separation rates than other components for both officer and enlisted personnel, while the USMCR and USNR have the highest separation rates. The latter two components have two to three times the separation rates of the Air Reserve Component.⁹ This means that their demand for prior service accessions also is higher by a factor of two or three because of their high

⁸M. S. Marquis and S. N. Kirby, *Reserve Accessions Among Individuals with Prior Military Service: Supply and Skill Match*, RAND, R-3892-RA, 1989.

⁹Reserve officers in these two components periodically transfer between the Selected Reserve and Voluntary Training Units (VTUs) in the Individual Ready Reserve (IRR); this partially explains the high rate of attrition.

separation rates. These higher separation rates mean that the USNR and USMCR forfeit much of the advantage gained by larger active/reserve ratios in manning reserve forces.

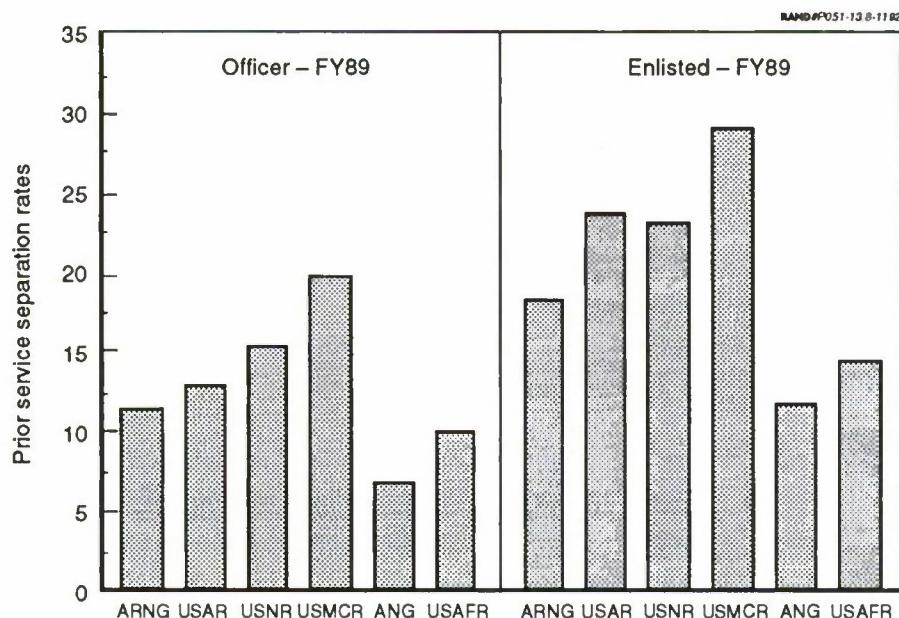


Figure 13.8—Annual Loss Rates for Prior Service Reservists: FY 1989

The Status of Reserve Components Entering the Drawdown

The Air Reserve Component enters the drawdown with the highest level of personnel readiness¹⁰ of any component. This derives partly from their small size relative to their active component. This allows them to recruit from a large pool of veterans relative to a much smaller number of available positions. This favorable ratio also allows them to more frequently utilize active skills in reserve jobs. The favorable ratio of veterans to job openings also arises from an extremely low rate of attrition which holds down required new accessions. The experience level is high both because of the high usage of experienced prior service personnel and the low attrition rate. Finally, the fact that the Air Reserve Component currently draws a much smaller proportion of Air Force losses than other components probably

¹⁰Grissmer et al., forthcoming.

indicates that queues of veterans exist that could cushion any sizable increase in the Air Reserve Component or decrease in active size.

The USMCR and USNR are starting the drawdown with markedly different conditions prevailing in their officer corps compared to their enlisted force. The USMCR draws virtually all its officers from prior service personnel, and is able to do this because it has the most favorable ratio of active to reserve officers—nearly 6 to 1. However, it also has the highest officer attrition rate among reserve components, and partly because of this it still draws a relatively large proportion of active veterans into the reserves. About 45 percent of the FY 1984 active loss cohort joined the reserve. The USMCR may at this rate be near its supply constraint for officers, given that it has the fewest locations nationwide. Perhaps because of higher attrition, the USMCR has officer skill qualification levels of only about 55 percent—much lower than the Air Reserve Component, but equivalent to the other four components. Significant shifts of mission into reserves may strain the supply of USMCR officers.

The USNR appears to be drawing the largest proportion of active officers into reserve service—approximately 56 percent. However, the Naval Reserve also has the highest attrition rate of all components except the USMCR. The USNR, like the USMCR, may be close to supply constrained with respect to its officers going into the drawdown. However, it is important to note for both the USMCR and USNR officers, the problem is caused by internal problems of high attrition. Reducing their career attrition to levels in the Army reserve components would greatly improve their status.

The USMCR and USNR have the largest active/reserve ratios for enlisted personnel partly because they have no companion National Guard component. For the enlisted force, the Navy draws about 23 percent and the USMCR about 13 percent of active losses compared to 35 percent for the Army. The exceedingly low draw of the USMCR results because it has over twice the proportion of junior enlisted positions compared to any other component and so utilizes a large proportion of non-prior service personnel. As long as the USMCR maintains this policy, it will probably have a large cushion of enlisted veterans to fill the relatively few positions. The USNR has almost 30 percent of its enlisted positions in junior positions and utilizes about 35 to 40 percent non-prior service personnel. This allows it not to draw from active veterans up to supply constrained levels. Both the USNR and USMCR appear to have some room to draw down active forces without running into supply constraints for enlisted personnel, but are much closer to supply constrained levels for officers.

The Army components start with significantly lower ratios of active to enlisted for both officers and enlisted—approximately one to one. They draw the largest proportion of any Service of the enlisted and nearly the largest for officer active losses. The Army components currently utilize about 50 percent of officer losses and 35 percent of enlisted losses. The ARNG also currently draws about 13 percent of its prior service personnel from losses of other active components. Even with these large proportions, the ARNG still utilizes very high proportions of non-prior service officers (55 percent) and enlisted personnel (66 percent), partly because of a high proportion of junior positions, partly because of supply constraints. The USAR has smaller proportions of non-prior service than the ARNG—about 36 percent for officers and 54 percent for enlisted. On the whole, the Army components enter the drawdown at greatest risk for future problems with manning. This risk is likely to be significantly higher, given that the reductions scheduled for the active Army are proportionally much greater than for the Navy or Marine Corps.

We now turn to an evaluation of future sustainability of the reserve components under a variety of scenarios.

Evaluating Future Sustainability

Projections of reserve prior service inventories for each reserve component for each alternative force option were made using RAND's Active and Reserve Force Screening Models.¹¹

An illustration of the personnel flows in this model is shown in Figure 13.9, which illustrates the model for the Army components. The models for the other Services are similar. For the Active Army, we generate active losses which, of course, form the prior service pool from which the Army reserve components recruit. These losses are projected using RAND active force flow models which incorporate the drawdown scenarios of each service. We utilize current planning guidance for active force drawdowns.

There is a very small percentage of losses from other active components, that also forms part of the prior service pool for the ARNG and the USAR. Active losses who join the two Army reserve components are labeled as *prior active*

¹¹See J. H. Kawata, D. W. Grissmer, R. Eisenman, *The Reserve Forces Screening Models (POSM): A User's Manual*, RAND, R-3701-JCS/RA/FMP, 1989, for a complete description of the reserve model used in this analysis.

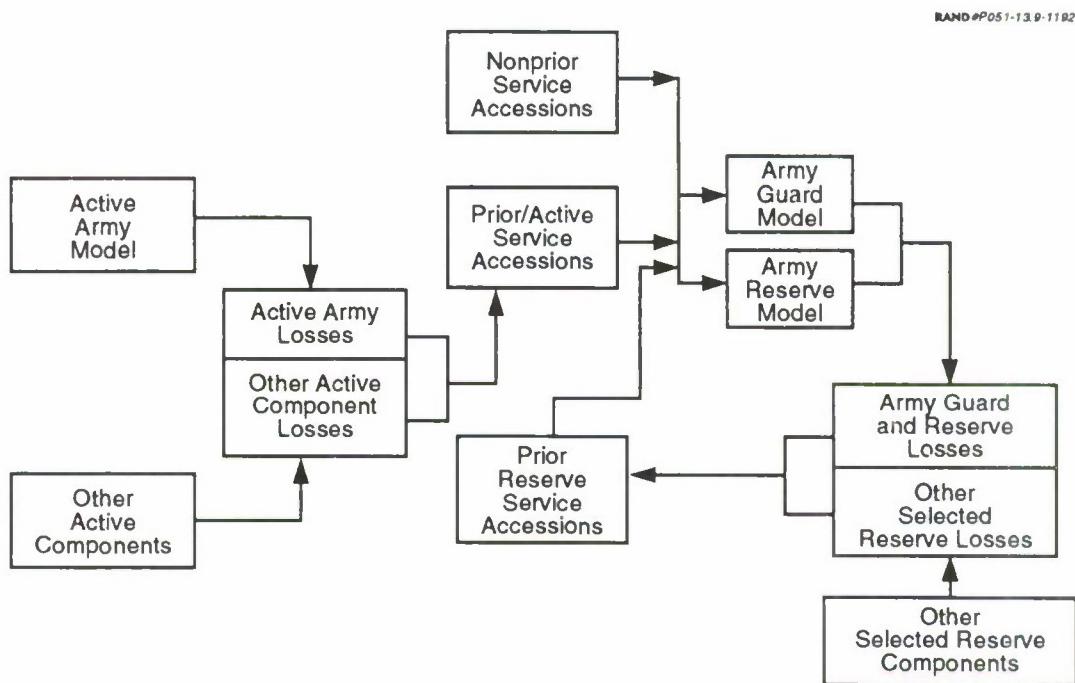


Figure 13.9—Flow Diagram for Single Service

service accessions, while *non-prior service accessions* are recruited by the ARNG and the USAR from the non-prior service pool.

A third group of accessions that must be accounted for is the prior *reserve* service pool. These are individuals who are reserve rather than active losses, and later rejoin the reserve component as "prior service" gains. Although the traditional definition in tables and reports published by the reserve components generally counts these individuals as "prior service" gains, our analysis assumes part of them have no active service and are *non-prior service gains*. We include in our definition of prior service only those individuals with prior *active* service experience.

The estimated supply of prior service personnel is based on projected active loss rates by year of loss and by years of active service served. The timing and propensities to enlist in reserve forces are based on historical data on active losses and reserve enlistments from FY 1979 to FY 1989. We project the future prior and non-prior service inventories of reservists separately using current inventories as a baseline and recent historical continuation rates for prior and non-prior service personnel for each year of service group. Assumptions used in the projections of future inventories include:

- Prior active service personnel are accessed to the limits of supply before non-prior service personnel are accessed;
- Active downsizing is completed by FY 1997 and that downsizing is done with a combination of accession reductions, voluntary separation programs (VSI and SSB), and early retirements;
- Reserve downsizing relies primarily on accession reductions. This assumption is conservative in the sense that increased voluntary separations among more senior reservists would result in lower prior active service content;
- Full-time manning stays at the FY 1989 percentage.

Army Alternatives

Officers. Figure 13.10 shows the projected prior service inventory in 2010 for the seven force structure options evaluated in this report, given a high and low propensity to join the reserve component. (See Chapter 8 for description of the options.) (Low propensity is equal to the historic rate and the high propensity, which is different for each service, is 15 percent higher for the Army. This is judged to be the maximum that could be obtained with increased recruiting and additional incentives.) Our projections show that prior service percentages will fall under all but one alternative for ARNG officers and will fall for about half the alternatives for the USAR. For the ARNG, levels fall to as low as 25 percent for the larger reserve force size alternatives and generally are between 25 to 30 percent for most alternatives. For the USAR, the FY 1989 level is maintained for three of the smaller reserve size alternatives, but falls to as low as 55 percent for the larger reserve force size alternatives. With higher propensity to join, the USAR reaches nearly 60 percent or more for all alternatives.

Major policy changes will be required for the ARNG to reach congressionally mandated levels of 65 percent prior active service. These will be discussed later. The USAR falls somewhat short of the goal for most alternatives, but are probably close enough that some additional incentives could result in their meeting the goal.

Enlisted. The enlisted results are shown in Figure 13.11. The ARNG enlisted force, which had a 34 percent prior service content in FY 1989, will experience drops in any of the alternatives evaluated. Prior service content falls as low as 15 percent for the larger reserve force size alternatives and reaches 32 percent for one of the smallest reserve force scenarios. The

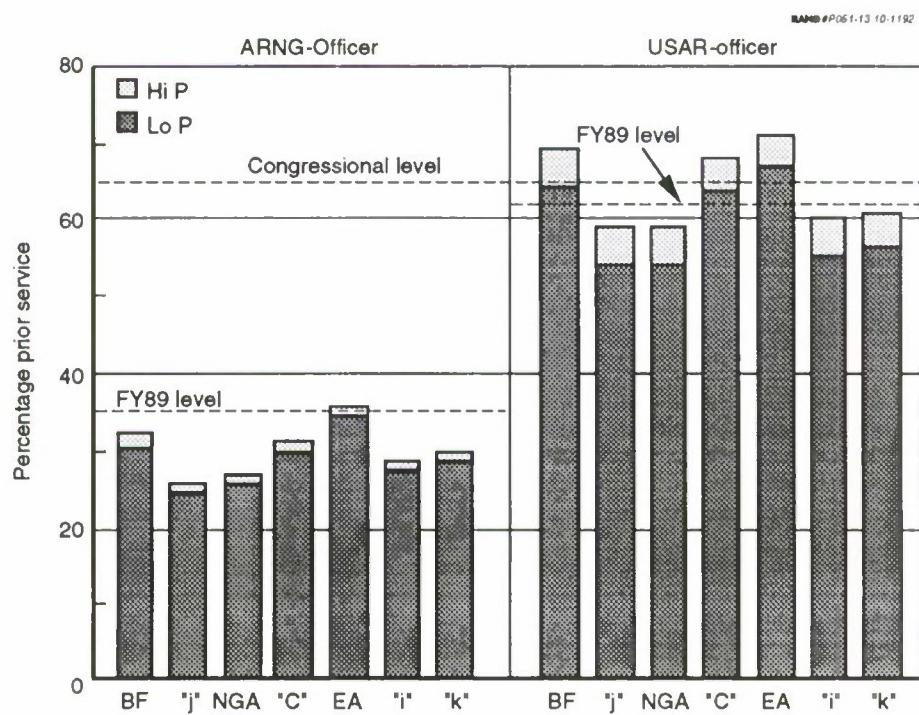


Figure 13.10—Army Force Option Results: Officers

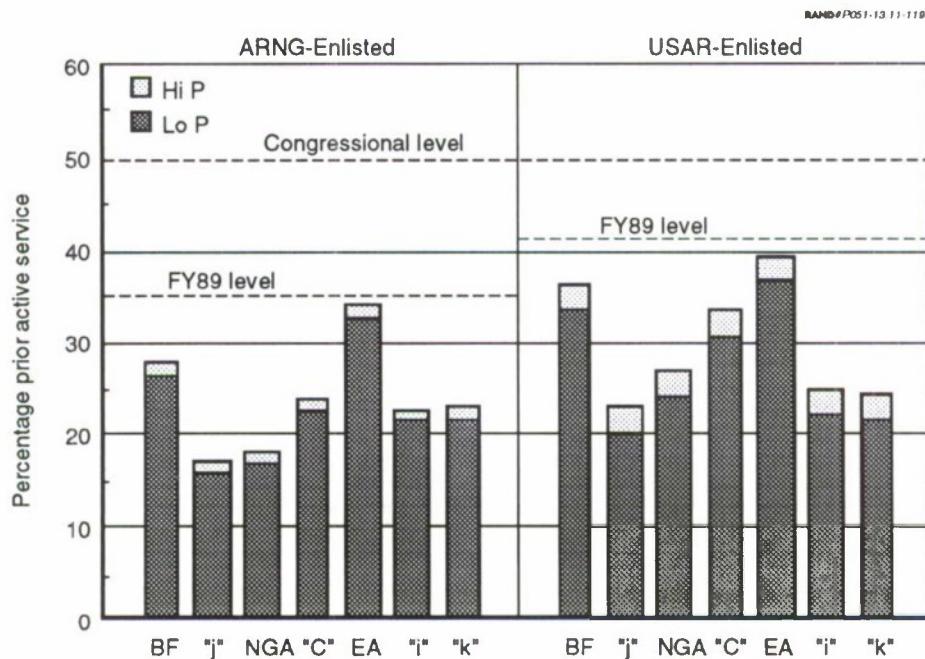


Figure 13.11—Army Force Option Results: Enlisted Personnel

USAR will also experience sharp declines in prior service content falling from FY 1989 levels of 42 percent to as low as 20 percent in the larger reserve force size alternatives. Even at higher propensities to enlist, which could not be possible without new policy initiatives, the percentages do not reach FY 1989 levels for any of the alternatives.

Both components are very far from the congressionally mandated level of 50 percent and none of the alternatives evaluated brings them even close to this level.

Navy

We considered seven Navy alternatives developed by the Center for Naval Analyses (see Chapter 10 for a description of the alternatives). They incorporate active end-strengths ranging from 501,000 to 432,000 and very wide-ranging reserve end-strength options with the highest being 161,000 and the lowest 65,000.

Officers. In the Naval Reserve, 63 percent of officers were prior service in FY 1989. The results (Figure 13.12) show that under the low propensity to enlist option prior service content would fall to between 50 to 60 percent under six of the seven active/reserve scenarios, but would increase under the "Aspin-C with minimum reserve" alternative. Using the higher propensity assumption (which has a 15 percent higher enlistment propensity), the estimate is that the officer corps could have an equal or higher prior service content than in FY 1989 under every alternative. However, the higher enlistment propensity is unlikely to be achieved without major changes in incentives for the Navy since the Navy currently enlists the largest proportion of active officers of any Service—almost 60 percent from the FY 1984 cohort. Naval officers would meet or come close to meeting the prior active service mandates set by Congress for the ARNG under any of the scenarios.

Enlisted. The results for the Navy enlisted personnel show similar patterns as for officers. However, the two high reserve force size alternatives under a low and high propensity to enlist show a decline in prior active service percentage from current levels of 53 percent to as low as 38 percent. The four alternatives with moderate reserve force size show approximately equal or higher prior service content. In the low reserve force size option, the prior service percentage rises as high as 75 to 80 percent. Under the higher propensity, only two alternatives fall short of current levels. However, the higher propensity may also be unlikely to be met for naval enlisted without

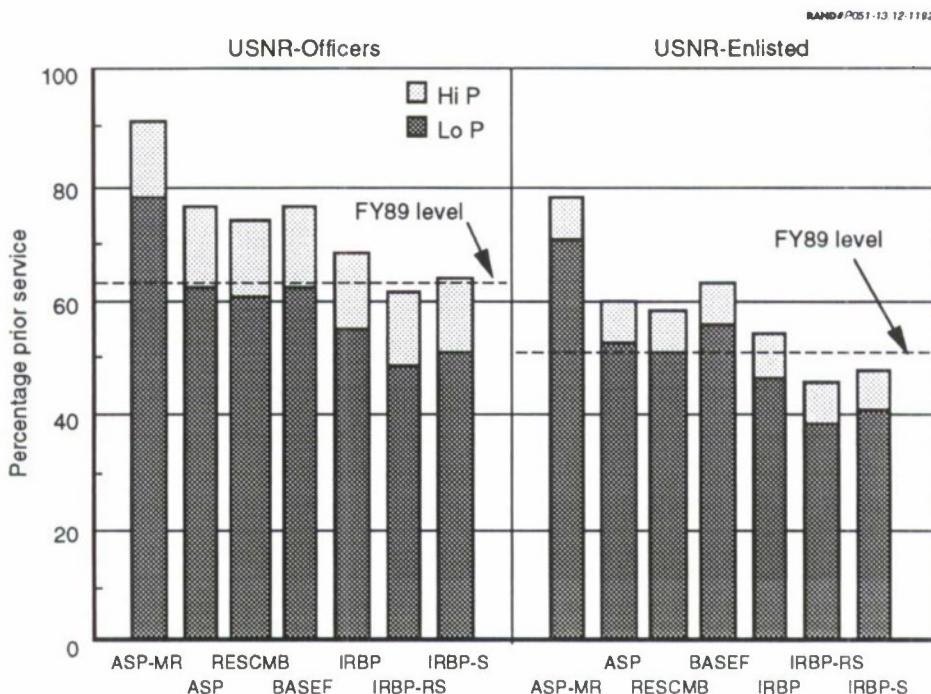


Figure 13.12—Percent Prior Service in Inventory, FY 2010: USNR Officers and Enlisted Personnel

new strong incentives. The USNR currently takes in the second highest proportion of their active veterans, and they probably are at or near supply constraints. The USNR enlisted force would meet the congressional mandate for ARNG of 50 percent prior content, except under the largest reserve force size scenarios.

Marine Corps

The analysis of the Marine Corps by CNA utilized 10 different force size and mix options (see Chapter 10 for a description). They correspond to 4 different active force sizes and 10 different USMCR sizes. The active sizes correspond to force structures of 2.5, 2.2, 2, and 1.5 Marine expeditionary forces (MEF). Within these active force sizes, the ratio of active to reserve forces varies across 10 options; two (2.5/1.5 and 2/2) for 4 MEFs; two (2.5/1 and 2/1.5) for 3.5 MEFs; three (2.5/0.5, 2.2/0.5, 2/1, 1.5/1.5) for 3 MEFs; and two (2/0.5 and 1.5/1) for 2.5 MEFs. The variation in active and reserve force sizes is quite large. The range of active force sizes is from 180,000 to 128,000 and the range of reserve force size is from 82,000 to 23,000.

Officers. The results (Figure 13.13) are quite different for officer and enlisted personnel. For officers, most alternatives show a decline in prior active service percentage from the very high level of 87 percent in FY 1989. The worst case is the 4 MEF alternative in which 2 MEFs are active and 2 reserve. The prior active service percentage would be less than 40 percent under this somewhat unrealistic alternative. Under most alternatives, Marine officers would meet the ARNG congressional limits of 65 percent. There is little difference under the high and low propensities because the USMCR currently takes in a very high proportion of its active officer losses. It would be very difficult to expand this proportion given the limited geographical coverage of USMCR units.

Enlisted. The USMCR has the lowest level of prior active service of any component—13 percent in FY 1989. This is partly a matter of policy to fill lower ranking positions with non-prior service personnel. The Marines take the smallest proportion of active enlisted losses of any component, and could probably expand this somewhat without changes in policy. With current policy in place, assuming the historical enlistment rate for active losses (Lo P), about half of the alternatives show further deterioration in the prior service percentage. Under the higher propensity, which is set at a 30 percent increase in propensity, the prior service percentage increases only to 15 to 20 percent for most options. Part of the reason for the difficulty in raising prior service rates is the high loss rates for USMCR enlisted personnel. Almost 30 percent of prior active service personnel separated in FY 1989—the highest separation rate by far of any component. Taking in more prior service is effective only if they stay. The USMCR enlisted are very far from the 50 percent goal set by Congress for the ARNG. It would be nearly impossible even under the lowest reserve force sizes to reach these limits without major policy changes that would reduce loss rates and increase joining rates.

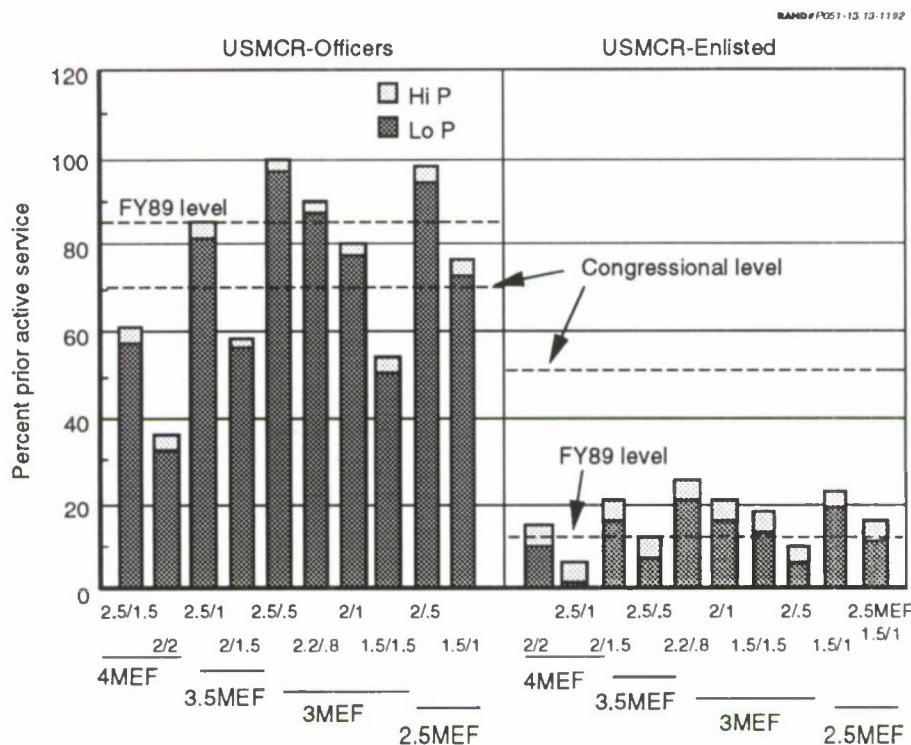


Figure 13.13—Percent Prior Service in Inventory, FY 2010: USMCR Officers and Enlisted Personnel

Results—Air National Guard and Air Force Reserve

Officers. Figure 13.14 shows the projected prior service inventory for ANG and USAFR officers under the four Air Force scenarios (see Chapter 9 for a description). The low propensity projections were done using historical joining rates which we believe are demand constrained. The high propensity projections assumed that Air Force officers would join at rates just below those of Army officers. This level is about 50 percent higher than current levels. The high propensity results then probably approach or exceed the supply constraints for Air Force officers without further incentives or policy changes. The projections then show that ANG prior active service levels could be at equivalent levels to FY 1989, while the results show that the USAFR would have somewhat higher levels. The model projects the potential for higher prior service because we assume that joining rates approach those of the Army, but we do not take into account any geographical variation in availability. We essentially assume that active

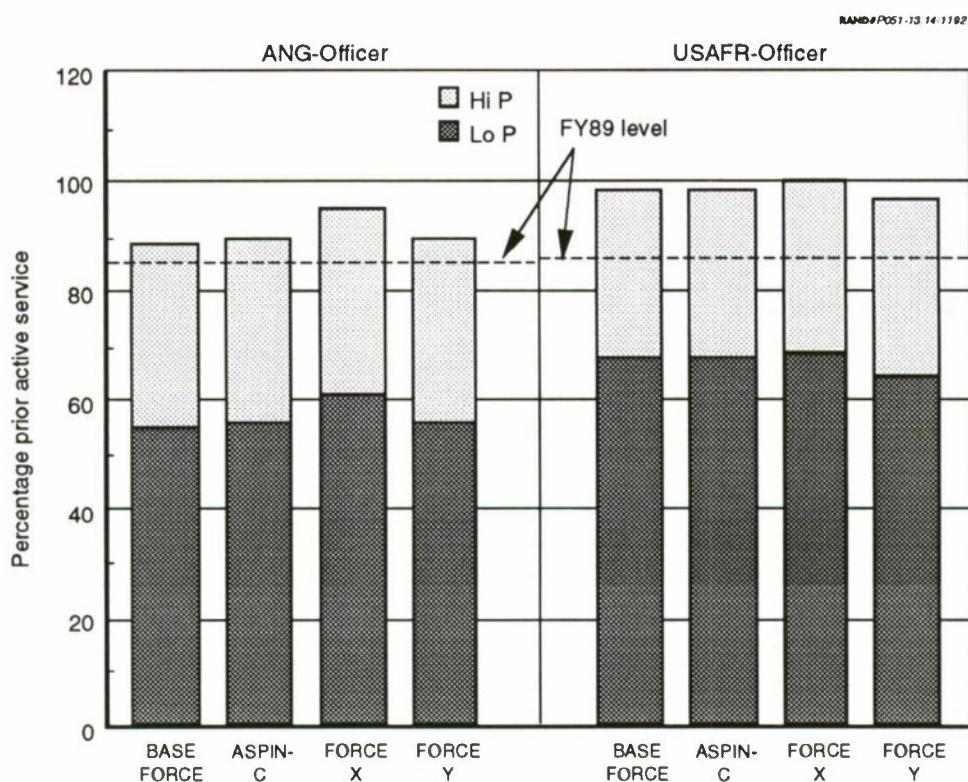


Figure 13.14—Air Force Force Option Results: Officers

losses could be relocated to fill existing positions. Actual joining rates would be constrained somewhat below these high levels because of geographical constraints.

Enlisted. Figure 13.15 shows the projection results for enlisted personnel. Here the results show some deterioration of prior service levels even under the high propensity. ANG levels are shown to decline from about 62 percent in FY 1989 to levels of 54 to 58 percent. For the USAFR the reduction is from levels just over 70 percent to just below 60 percent. The differences in the four alternatives for both officer and enlisted are relatively minor. Under these projections, both components would comfortably meet the congressional goals established for the ARNG.

Policy Options and Summary

In the nearly 20 years since the all volunteer force policy was adopted, the major focus of active personnel and compensation policy has been to maintain overall pay at levels necessary to achieve high enlistment quality and

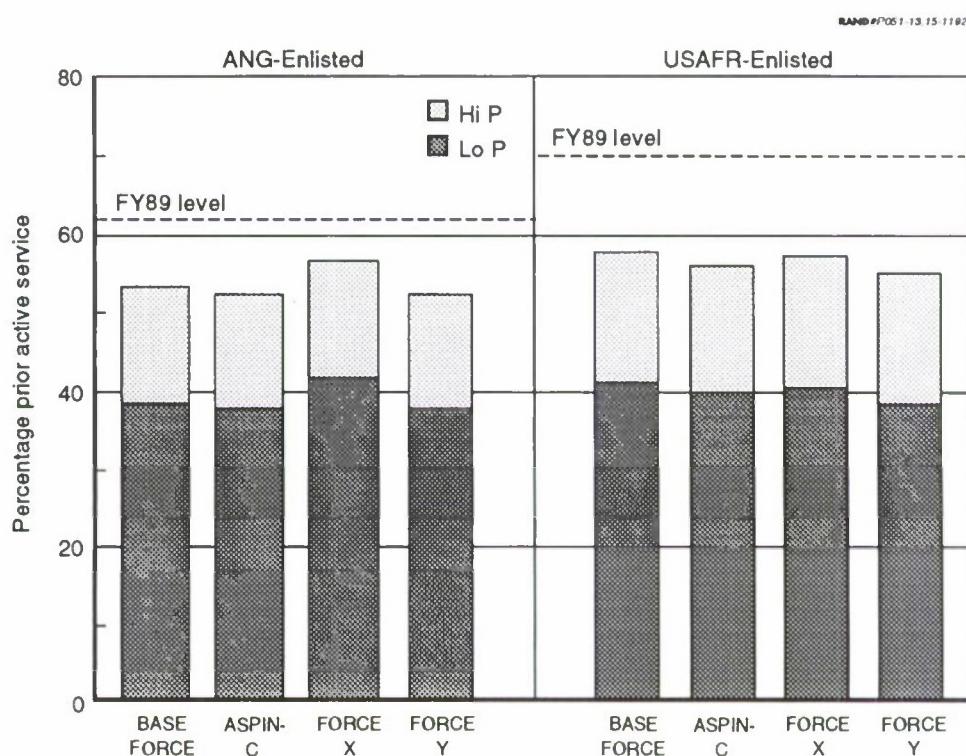


Figure 13.15—Air Force Force Option Results: Enlisted Personnel

high rates of retention, and to utilize various forms of differential pay for occupations that were more difficult to man. The high rates of retention were critical in order to lower accession requirements to levels that could insure high quality. These policies have produced the highest retention, lowest rates of turnover, and highest level of experience in history, and have been successful in meeting manpower requirements across all skills.

The reserve forces have been less successful at meeting all their manpower requirements partly because they have an inherently more difficult job. The reserves needed to recruit and retain the appropriate occupational mix of personnel from over a thousand individual labor markets throughout the nation, and reserve military pay was a much less effective influence over choices made to join and stay in service. While the reserve forces are undoubtedly much improved over draft era reserve forces, there remained significant unsolved personnel problems prior to downsizing. Moreover, these problems were distributed very unevenly across components. The Air Reserve Component managed in this environment with few problems, but the remaining components all experienced significant personnel problems.

In the active force, the Army has always been the most difficult to man because of their large requirement, and active force compensation and recruiting policies were by and large driven by the Army requirements. If the policies produced the quality of manpower needed by the Army, they would provide for the other services as well. For the reserve forces an integrated set of policies that would insure equivalent levels of personnel readiness across components has never been instituted, and the result is very large differences in quality across the reserve components.

Perhaps the reason for the inattention was the belief that reserve forces were not critical to defense needs, or were inherently larger than dictated by defense needs and a low level of readiness in some components was acceptable. However, the experience of ODS and the greater reliance on reserve forces which will probably arise from downsizing and restructuring makes solving reserve problems across all reserve components more critical. The results in this chapter clearly show that achieving reserve personnel readiness in the future will be more challenging than in the past. Meeting this challenge will—at minimum—require a rethinking of the personnel and compensation policies of both the active and reserve forces and especially of the links between active and reserve forces.

The results show that under current policies only the Air Reserve Component could maintain current levels of personnel readiness, but even here it would require utilizing nearly all active force losses currently willing to join reserve forces. For the remaining components, there will be a loss of prior active duty personnel under most envisioned force sizes, and this means a significant loss of the base of military experience that prior active service brings. Restoring that level of experience even to current levels will require either enlisting more active duty losses than are currently available and willing to join reserve service, or significantly raising the retention of prior active duty personnel in the reserves longer than they currently serve. Either option will require major reform of current active and reserve compensation and personnel policy. For the reserves, it will present a long overdue opportunity to reform personnel and compensation policies that are the basis of the current problems as well.

Maintaining the current level of prior active service utilization will take major reform. However, the ARNG will not come close to meeting the congressional goals set for the ARNG with current levels; they will need to increase their prior service utilization. This will probably require implementing one of four policies in addition to compensation reform.

The first is a "reserve draft" that would make reserve terms of service mandatory for a large share of active Army enlistees.

The second is a very large downsizing of the ARNG to levels that would insure meeting the goals under voluntary rates of prior active duty enlistment and retention. This level would be far below any of the ARNG levels evaluated in this report.

The third option is to restructure the current Individual Ready Reserve and incorporate them as paid members in the Selected Reserve and train them to be utilized for cross leveling in the event of mobilization. This could not only solve much of the problem of meeting congressional goals, but would solve a key problem uncovered in ODS—namely, the large number of unqualified personnel in many units.

The fourth is to require most non-prior service personnel wishing to enlist in the ARNG to have a minimum two year term of active or equivalent occupational service.

In the absence of congressional mandates, the reserve components would maintain larger end-strengths even in the face of declines in prior service supply by substituting non-prior service personnel. However, such a substitution can result in a substantial decrease in military experience. It will take a non-prior service reservist emerging from initial active duty training (IADT) over 6 years of reserve duty to equal the on-the-job (OJT) training time of one active year of service. In addition to the differences in training time, an individual on active duty will generally have access to better and more varied training opportunities than will those who have served exclusively in the reserves. Significant shifts toward a greater reliance on non-prior service personnel would raise serious concerns about the impact of this loss of experience on reserve readiness.

Reform of Reserve Personnel and Compensation Policy

We will discuss briefly here the direction needed for compensation and personnel reform in the reserve. It should be emphasized that this reform will be needed to insure manning of the hardest-to-man reserve components. The Air Reserve Component would not need such reform; however, policies are needed to ensure adequate personnel readiness across all components.

The policies need to be targeted at the following personnel goals:

- Increase propensity to enlist among active veterans;
- Decrease loss rates of prior service personnel in the reserve forces;
- Raise skill qualification levels;
- Shorten gaps between active and reserve service;
- Increase utilization of active skills by better skill matching for prior service personnel at entrance;
- Lower unit and skill turbulence; and
- Increase the skill proficiency of non-prior service personnel.

It is important to understand the sources of many of the current problems. Many of the problems arise because of the implicit assumption made by military planners that the reserve and active forces should be mirror images of one another in terms of military structure and compensation systems. When military personnel requirements are currently specified for units, the requirements to fill jobs are specified by paygrade. This design implicitly assumes that an individual at a given paygrade is in the active force and the level of military experience for each paygrade is fairly similar. The problem is that in reserve forces promotions do not depend on effective military experience and individuals can qualify for higher grade positions with much lower levels of military experience. As long as higher positions are manned by prior service, the problem is minimal. However, when non-prior service personnel fill senior positions, the process for designing military units breaks down.

Another contributing factor to reserve problems is the compensation system structure. The reserve compensation system utilizes a pay table that is structured like the active table. Individuals are paid by grade and year of service. However, an active and reserve year of service do not provide similar military experience. Thus, we are increasing pay levels in the reserve at the same rate as in the actives for an additional year of service even though we do not buy equivalent increases in marginal productivity. This pay table also means that we pay an active prior service individual with 5 years of active service and 1 year of reserve service at the same rate as an individual with 6 years of reserve service, even though the latter has less than 20 percent of the military experience of the former. This means that prior service personnel get no extra pay for their experience and so loss rates actually are higher for prior service than non-prior service personnel at similar years of service. Essentially the pay system provides no additional incentives for prior service personnel to stay unless they are given preference at promotion.

It is important to recognize that one important motivation for skill switching—a serious problem for Army reserve components—comes from the current reserve pay table and from the structure of reserve units. The reserve pay table—because it mirrors the active pay table—provides strong incentive for promotion rather than longevity. A typical E-5 will receive an immediate 10 percent increase upon promotion, and a 3 percent increase for serving two more years in the current grade. Moreover, many reservists stay in grade so long that they no longer receive longevity increments. This means that the only route to higher pay is promotion. Since retirement pay is linked to active pay, it is substantially boosted through the promotion process also.

This promotion driven system is exacerbated by rigid grade structure which sets limits on the maximum pay grade achievable within a skill. Many skills have maximum E-4, E-5, or E-6 constraints. Further advancement means switching skills. We thus have designed an incentive system which encourages individuals to seek higher pay grades as a route to higher pay, and achieve higher pay grades by switching skills.

This pay table and unit structure serve the active better than the reserves. Active forces need a higher grade structure and more senior careerists to man the more extensive training base and administrative structure of active forces. Also, skill retraining is done full-time and can be done more quickly and surely than for reserve forces. In the reserves, we need an incentive system that pays individuals to stay in skills longer.

The following policy options may help solve or at least ameliorate the severity of future personnel problems in the reserve. They are discussed in more detail in Grissmer et al. (forthcoming).

Establish Standards of Effective Experience for Grades and Skills

Setting standards of effective experience for paygrades would help alleviate the problem that the effective experience level ranges widely for similar paygrades in the reserve components when compared to the active. These standards need not necessarily be the same as the active force and could be differentiated by specialty and/or by grade level; however, some minimums do need to be established in order to ensure that the reservist has enough effective training to carry out his assignment properly. Setting such standards would also implicitly specify the mix of prior and non-prior service personnel in the inventory, and would allow better utilization of prior service personnel. Using a measure such as effective experience rather than

years of service is, we believe, necessary in order to obtain a more realistic picture of the actual experience of units.

Restructure Incentives to Attract and Retain Prior Service Individuals

Ideally, the economic incentives should be greater for prior service individuals to stay in the reserves since they bring increased levels of experience. While the reserve retirement system provides credit for active service, and prior service personnel qualify for higher pensions, the pensions do not start until age 60 and provide a very weak additional incentive for prior service personnel. The current reserve pay system gives equal credit for an active and a reserve year of service providing no additional pay for the greater experience of prior service personnel. A mechanism is needed that provides additional pay for additional military experience.

A pay table that rewards actual experience rather than "years of service" and provides more incentives for longevity in a skill is desirable. It should even be possible to pay those prior service personnel at higher rates should they utilize their active skill. Some of the compensation changes could be done through a proficiency pay table overlaying the current pay table, while other changes could best be accomplished through special pay, e.g., bonus payments.

It is clear that the reserves are highly dependent on prior service individuals and these tend to be very cost-effective in terms of the level of training and experience they bring with them. Making reserve pay more flexible and relying more on enlistment bonus payments would attract more prior service individuals into the reserves. Such bonus payments could be higher for shorter gaps between active and reserve service.

The individual components face markedly different recruiting and retention problems due to their different sizes, their different dependence on the prior and non-prior service pools, the different sizes of the active prior service pool, differences in skill mix, and differences in local labor market conditions. Bonuses and retainer payments would allow for more precise and cost-effective targeting of compensation toward specific personnel and training problems.

Establish Proficiency Pay to Reward Longevity in Skill

The readiness of units in the reserve components is severely degraded by the presence of personnel who are not minimally qualified in their assigned skill. As we have seen, changing skills and units is a frequent occurrence for reservists, frequently because of promotion opportunities. Under the current prior service bonus system the individual has no incentive to search for a job match in current skills. We should pay higher bonus amounts to prior service individuals who utilize active skills in the reserve because we do not have to pay retraining costs. We should also make downstream payments for enlistment and reenlistment bonus payments dependent on minimum time spent in the current skill.

Ideally this would mean a redesigned pay table which could provide the same or higher pay to reservists, but would provide less incentive for promotion and more incentive in the form of higher and longer longevity increments to stay in current skills. The authorization structure could also be changed to allow higher grade progression for certain skills. Basically, we need to design a reserve career incentive system which keeps individuals in skills for five or ten or twenty years depending on type of skill, using some variant of proficiency pay that would be superimposed on the regular pay table.

Establish Objective Standards for Skill Proficiency

A second issue in reserve skill qualification is the extent to which the designation of minimal skill qualification actually matches real skill proficiency. Since much reserve training occurs during OJT at the local unit, the unit commander is given authority to award skill completion. The actual proficiency attained at the award of qualification can vary considerably across units, depending on the local process. This uncertainty of actual reserve skill proficiency makes it important to initiate reliable and valid measures of skill proficiency that allow more weight on objective standards. Such measures would introduce better quality control into the skill qualification award.

All of the concerns with the reliability and comparability of minimal qualification standards apply also to advanced skill proficiency levels. Much of attained skill proficiency in the active force is achieved through full-time practice in units after completion of advanced individual training (AIT). For reservists who can practice skills only part-time, attainment of skill proficiency beyond the initial qualification level may take much longer and

equivalent proficiency to active members may never occur. Thus, measures of basic skill at minimal qualification levels may not fully reflect differences in skill proficiency between active and reserve members. Measurement of actual attained skills—not just at minimal proficiency levels—is an important part of the skill measurement process.

Establish Attractive Active Force Enlistment Options That Have Mandatory Reserve Terms

Rather than make all active enlistees have mandatory terms, it would maintain the spirit of a volunteer force for shorter enlistment terms of two or three years to have an option for reserve service. Choosing this option would carry enhanced educational benefits, enlistment bonus payments or other inducements. Such a policy would increase the active force accession requirements, but increase the flow of veterans into the reserve. This would also partially avoid the inevitable lower reserve retention rates that would occur with mandatory terms of reserve service.

Section V

Conclusions

14. Observations on Building an Effective Force Structure

In Chapters 11 and 12, we compared and assessed a number of alternative active and reserve force structures and mixes for each of the Services. We considered a number of factors including the number of active and reserve personnel used, the cost of the alternatives, and their ability to provide fully trained reserve units to meet military demands. (A classified companion report discusses military effectiveness in more detail than was possible in this unclassified report.) We noted that no single alternative dominated, but several clearly came closer to meeting the various criteria. In Chapter 13, we considered the added criteria of personnel sustainability and projected the ability of each of the reserve components to meet the personnel goals set by Congress for the Army National Guard. We noted that it is unlikely that the Army reserve components will attain the goal unless a number of additional personnel reforms are enacted. In this final chapter, our purpose is to move beyond the details of scenarios, the calculus of force planning models, and the specifics of a particular proposal to a broader set of suggestions to help Congress, the new administration, and the various active and reserve components deal with the future.

The Defining Characteristics of Force Structure in Today's World

The structure and mix of active and reserve forces is a topic with a very long history. And history is both instructive and confining. It shapes expectations and defines options for the future. We look to the future through the prism of the Cold War and the Persian Gulf experience, but the clear signs are that the future will be very different from our most immediate past. As it has after every war in its history, the nation continues to struggle to define its future military posture and our place in the world. To the extent that neither is set, so a final active/reserve force structure and mix will not be set. To the extent that we can agree on broad principles, those principles can guide the debate and help shape the future total force.

In this study, we identified four *defining characteristics* that should provide insights useful to both Congress and a new administration. They are:

- The purpose of our military force;
- Our National Military Strategy—what we want that force to accomplish;
- The criteria used to assign specific missions and units to the active or reserve component; and
- The type and level of integration among active and reserve forces.

Purpose

As we have argued, military forces potentially have conflict and non-conflict roles. During the study, we saw both active and National Guard units deployed to Los Angeles and Southern Florida to ensure domestic tranquillity and to help the victims of a hurricane. The National Guard has repeatedly raised the issue of its "dual status roles." Nothing in any of the alternatives that we considered inherently threatens the National Guard's non-conflict role. However, we did not explicitly deal with this issue. It was not within our charter, but Congress and the new administration must deal with it.

National Military Strategy

Probably the most important and still uncertain *defining characteristic* is our National Military Strategy. While this country has a grand tradition of bipartisan, stable foreign and military policy, many issues still are not settled. January will bring not only a change in administration, but a change in political party and many new members to Congress. Even if strategy changes or the size of the military budget is reduced beyond the levels we examined, fundamental conclusions from this study still will be useful. We discuss these below.

Criteria

In this study, we presented different views of how to structure active and reserve forces. We highlighted the cost-effectiveness criterion of Total Force Policy and the political importance many in Congress put on involving citizen-soldiers in any future combat situation. The cost-effective view is based on a *competitive* model that has, in particular, pitted the active Army and the Army National Guard against each other, in a kind of zero-sum game of "I win, you lose!" In a post-Cold War world of shrinking defense resources, we need a new model that stresses the *complementarity* of the active and reserve components in building a structure that is larger and more robust than its parts because it draws on the best that each component has to offer. This will

require innovative thinking and a willingness on the part of all active and reserve components to put aside old prejudices and long held prerogatives. Changing old ways of doing business will not be easy.

Integration

A new force for the future must integrate active and reserve elements in new ways. In this, the Air Force has led the way. Organizationally, the Air Force is every bit as complicated as the Army. There is an active Air Force, an Air National Guard, and an Air Force Reserve. Yet, they seem to work well together, with the whole being greater than its parts. There are still opportunities for the Air Force to extend its successes. There are many opportunities for the other services to develop more effective organizations. In the course of our work, we considered many ways to bring Army components together to build on the strengths of each, taking into account the limitations of each. In the many briefings of our Army alternatives, we were impressed with how uncomfortable both the active Army and Army National Guard were with ideas that might lead to more integration and end the competition between them. The intrinsic merit of our ideas aside, one thing is certain: The nation will be best served if the active Army and Army National Guard can work together to improve the total force.

Lessons from the Persian Gulf War

The Persian Gulf War was both the last conflict of the Cold War and possibly a prototype of regional conflicts to come. It provided many lessons that will help us build a more responsive total force structure for the future, but it pointed up how different the future is likely to be.

Each of the Services and their reserve components had notable success. The Army was very successful in deploying and using reserve combat service support and reserve combat support units. Even the experience of the reserve combat brigades was much better than in similar call-ups before the Capstone or roundout programs were instituted. The Air Force proved the utility of its associate units, the readiness of its reserve fighter force, and the ability to integrate reserve aircraft squadrons into deployed active wings. The Navy's selected reserve structure facilitated the call-up of medical personnel with specialized skills. The Marine Corps' ability to integrate company sized reserve combat units into their total deployed force was impressive.

The deliberate use of call-up authorities ensured that units were not called before they were needed, but deprived force planners access to the Individual Ready Reserve. Likewise, prohibition against calling individual selected reservists resulted in the Services developing new ad hoc procedures to circumvent the intent of Congress. However, probably the most important lesson from the Persian Gulf War is to understand that it was unique and not to over-generalize from it.

The total force in being at the time of the Persian Gulf War was developed to meet a global threat from a large Soviet empire. This force, both active and reserve, was many times larger than the force we deployed to Southwest Asia in 1990. As a result, we managed the call-up in ways that are not likely to be appropriate in the future. Even with the focus on regional rather than global contingencies, the projected force structure is not so robust that the active components can go it alone. If we put even more support units into the reserve components, the president will have no choice but to call up the reserves even before he makes a final decision to deploy forces. Getting the reserve combat units into the fight will be more important than ever, but we must face some realities concerning peacetime readiness and the time it takes to prepare reserve combat forces.

Meeting the Need to Deploy Reserve Combat Forces Early

Our work suggests that, given the demands placed on roundout units to be ready for deployment with their parent divisions, they need considerably more post-mobilization training than many had assumed, both to ensure basic combat skills and to master, test, and demonstrate the ability to command and control combat brigades. While many reforms have been suggested and some have begun, more direct organizational reforms such as rounding out units at lower echelons of command may be necessary. While this has its drawbacks, we believe that it holds the best prospect for meeting the heavy demands on an early-deploying combat reserve unit.

During the Persian Gulf War, we were able to call the forces that were needed, when they were needed, and still had a very large residual force of active and reserve units to deter adventurism in other parts of the world. In the future, with a smaller total force we will not have the capability to deploy forces to a second contingency unless we take deliberate steps to restock our military capability through the early call-up of reserve combat forces as soon as active units are deployed to a combat theater. If we wait until the second contingency develops, either it will take months to make them ready or we

will have to respond with troops that are less than fully prepared. Our analysis suggests that more attention and resources should be given to that possibility. This situation is entirely new, but is a direct consequence of the decisions to reduce our forces to a size more appropriate to carry out regional, rather than global, commitments.

Improving the Readiness of Reserve Combat Forces

An important question, and one that has been neglected, is how we bring the remaining reserve forces to combat proficiency. There are many opportunities to improve the performance of the total force by capitalizing on the unique strengths of active and reserve personnel. Our findings indicate that active units should be charged not only with supporting reserve training during normal peacetime periods, but, during a mobilization, they should constitute mobilization training units to rapidly bring reserve brigades up to wartime proficiency. There appear to be opportunities to further capitalize on the lower sustaining cost of reserve units to complement active units in building a larger and more capable force structure. In both the Army and the Air Force, our research suggests that there are opportunities to extend the associate unit concept into new areas where we currently do not have enough crews—flying crews, maintenance crews, artillery and support crews—so that we can use expensive equipment up to its full potential.

However, both active and reserve components must be realistic about what they can accomplish and what they cannot. For example, the reserve components must be realistic about the levels of readiness that they can achieve, given limits on their training ability, and the fact that their force cannot practice as frequently as their active duty counterparts. In the Army, active leadership must focus on the entire requirements of the National Military Strategy, not just the first contingency. Like the Marine Corps, it must develop new ways to make sure that, both before and after mobilization, they provide the training and leadership that will allow the nation to fully benefit from the substantial investment it will continue to make in its reserve forces. The Air Force needs to build on the experience of their associate units to extend the concept into new areas.

Another important way to improve readiness is to increase the numbers of men and women in the reserves who have extended periods of prior active military experience. As we discussed, there are limits to this and the current voluntary system is not likely to provide the desired results. New ways must be tried, but they will require changing many of the current personnel prac-

tices to provide more flexibility for members with active experience to join units and to prevent stagnation within reserve units.

The Congress must be realistic about the difficulties that the reserve components face in attracting and retaining junior personnel and people with prior active military experience. Moreover, increased integration of active and reserve forces will require more flexibility on the part of Congress in the rules that it sets: for example, the need for total-force-duty payback periods, rather than active duty payback periods for officers who receive their college education at government expense, or the authority to call up individual selected reservists.

The Need for a More Integrated Total Force

In sum, our model for the future stresses a more integrated and internally cooperative total force that brings active and reserve personnel together in new and innovative ways to build a better and more robust force. There are important areas where that has been done and progress should continue. The substantial role that reserve CSS/CS units play in supporting active combat units in the earliest days of a military operation works and should be expanded. Innovative concepts, such as the associate concept, need to be expanded. In the future, the role of the reserves will increase in importance, particularly as a critical element in deterring potential enemies who might try to take advantage of a situation when we are engaged in a major regional contingency. If deterrence fails, the reserves must provide the forces that will enable us to fight and win.

Appendix A

Israeli Defense Forces and the Bundeswehr

As Chapter 5 reported, this study examined several foreign military systems to draw potential lessons for U.S. forces. In this appendix, we discuss the Israeli and (West) German systems. The Israeli Defense Forces (IDF) are of interest because the Israeli reserves have demonstrated their effectiveness in several wars. The German Bundeswehr is of interest because it has developed alternative forms of active/reserve integration related to roundout and filling in understructured active units.

There are common elements in the German and Israeli militaries. Both systems have mandatory active military *and* reserve service. Both emphasize continuity of association of personnel in units, although the Israeli military has the greater emphasis. Also, both systems use reserves to fill out undermanned or cadre units and provide for active leadership of reserve units.

Israeli Defense Forces

Purpose. The Israeli Defense Forces are structured and trained for conflict. The IDF also performs another significant function more closely related to police activities than to combat—patrolling Israeli-occupied territories.

Active/Reserve integration. Because of its small size, Israel cannot afford to depend on large standing forces. Instead, reserves account for approximately 80 percent of the IDF.¹ The Israeli reserve forces are unusual among reserve forces in that they are the country's most important operational components, rather than being follow-on and reinforcing forces.²

The basic combat formation in the Israeli army is the brigade. Similar to the U.S. Army, some IDF reserve brigades round out active divisions and others form all-reserve brigade divisions. Active armored divisions in the IDF consist of two armored brigades and one artillery brigade. On mobilization,

¹International Institute for Strategic Studies (IISS), *The Military Balance 1991–92*, Brassey's, London, 1991, pp. 108–109.

²Reuven Gal, *A Portrait of the Israeli Soldier*, Greenwood Press, New York, 1986.

they are rounded out by one reserve armored brigade and one reserve mechanized infantry brigade.³ All the brigades, roundout and non-roundout, are expected to mobilize and be ready for combat within days rather than months.⁴ The active army also has brigades manned at half-strength and at cadre manning levels, to be filled in by reservists upon mobilization.⁵

Leadership of reserve units is a mixture of active and reserve component officers. Division commanders and substantial portions of their staffs are active. At brigade command level, there is a mix of reserve and active officers.⁶ Reserve officers typically command at the battalion level. Selection for battalion command is said to be very rigorous.

Active officers are also assigned to staff positions in reserve units down to battalion level. Assignment of these soldiers to reserve units is "accepted as the norm and does not affect career progression."⁷ Reserve units also have cadres of active maintenance and supply personnel to keep equipment ready.⁸

Manning and training. Israel has universal military service. Males typically serve three years on active duty and unmarried females two years.⁹ Males who become officers must serve an additional year; females must have at least one year of active service remaining to become commissioned officers.¹⁰ All officers begin their military service as enlisted personnel. After leaving active service, all males serve in the reserves until age 55. Combat units are typically manned by personnel under age 40; after reaching that age, reservists are transferred to support units.

Reserve combat units are commonly composed of people who served together on active duty and remain together throughout the lifetimes of their units. Within these units, personnel stability is maintained, even at crew-level. Crews perform their refresher training and annual training together for several years, learning each other's abilities and personalities.¹¹ The fact

³IISS, *op. cit.*, p. 109.

⁴It has been reported that the Israeli army can mobilize 100,000 reservists within 24 hours. Richard F. Nyrop, *Israel: A Country Study*, 2nd ed., The American University, 1979, p. 262.

⁵Charles E. Heller, *Economy of Force: A Total Army, the Israel Defense Force Model*, Strategic Studies Institute, U.S. Army War College, March 15, 1992, p. 22.

⁶Gal, *op. cit.*, p. 34.

⁷Heller, *op. cit.*, p. 8.

⁸*Ibid.*, p. 23.

⁹Service in units with longer or more costly training requires longer tours of active service.

¹⁰Gal, *op. cit.*, p. 32-33.

¹¹This contrasts with the very high turnover of individuals in USARNG crews.

that Israel was involved in major wars in 1956, 1967, 1973, and 1982 means that many crews were together in more than one war.¹² The stability and experience of these reserve crews are believed to greatly enhance reserve unit effectiveness, cohesion, and morale.¹³

Reserve units are also usually overstrength, particularly in critical skills, to insure against "no-shows" and early combat losses.¹⁴

Typical reservists serve about 45 days per year. Of these, 30 to 35 days are spent on active duty. Half of the active duty time is spent training for wartime missions and the other half on operational missions, e.g., border patrols and patrols in Israeli-occupied territories. Typical battalion commanders may spend 80 to 90 days per year total, not appreciably different from U.S. reserve battalion commanders.¹⁵ Part of the additional time—10 to 14 days—is spent participating in command post exercises and other exercises not requiring troops.

Apparently, fiscal constraints have reduced the number and lengths of exercises. In addition, live-fire opportunities for officers and enlisted personnel in the armor branch have been reduced to once every three years.¹⁶ The combination of reduced quantity of training and declining wartime experience levels of reserve combat units raises a question about the continuing combat effectiveness of IDF reserve forces.

Bundeswehr

Purpose: The Bundeswehr's constitutionally mandated mission is to defend the state and its citizens.¹⁷ The Bundeswehr also supports civilian organizations in emergencies and disasters and provides humanitarian assistance abroad.¹⁸

¹²However, reserves played a much smaller role in the Lebanon invasion (1982) than in the earlier wars.

¹³Gal, *op. cit.*, p. 40-42.

¹⁴Irving Heymont, *Analysis of the Army Reserve Systems of Israel, Canada, United Kingdom, Federal Republic of Germany, and the Netherlands*, General Research Corporation CR-180, May 1977, p. 8.

¹⁵Telephone interview with Harel Rotem, Israeli Embassy, Washington, D.C.

¹⁶*Ibid.*

¹⁷The Federal Minister of Defense, *White Paper 1985: The Situation and the Development of the Federal Armed Forces*, p. 71.

¹⁸*Ibid.*, pp. 150-152.

Active/Reserve integration. Reserves account for approximately 60 percent of German army wartime strength.¹⁹ The reserves have three central roles: (1) filling out active combat units; (2) furnishing logistical support, rear area security, and wartime host nation support; and (3) providing a pool of replacement personnel.²⁰

The German army is implementing a new organizational structure termed "skeletonization" of units. Skeletonization is similar to the establishment of cadre units. The central idea behind this new structure is the coupling of like battalions, one (the parent battalion) manned by active duty personnel at approximately 90 percent of wartime strength and the other (the buildup battalion) either manned by a small cadre of active personnel or left unmanned. Upon mobilization, the active personnel in the parent battalion are divided evenly between the two battalions and the remaining billets are filled by reservists. The commander of each battalion is an active officer.²¹ To insure that the commander of the parent battalion focuses on the buildup battalion, the commander of the parent battalion leads the buildup battalion on mobilization.²² Reserve manning for the parent and buildup battalions may be provided by personnel discharged from the parent battalion, thereby reducing turnover and increasing cohesion in the parent brigades.

The new structure is not a radical departure from previous practice. Under the system now being replaced, one of five battalions in each active armored and armored infantry brigade has an active cadre. Each active battalion maintains an additional company's worth of equipment in an equipment holding unit. These equipment holding units are stocked with all their combat equipment but have only a small cadre of active personnel manning them. Upon mobilization, these units are to be filled out by reservists and regrouped under the cadre battalion.²³

Manning and training: Germany has military conscription for males. The term of obligated service was recently reduced from 15 to 12 months. After serving on active duty, conscripts are required to be members of the reserves.

¹⁹IISS, *op. cit.*, p. 59.

²⁰White Paper 1985, *op. cit.*, p. 255.

²¹Lt. Gen. Manfred Fanslau, Bundeswehr, Commissioner for Reserve Affairs, "Rapid Political Change Tries Force Planners," *The Officer*, July 1991.

²²Lane Pierrot, *Structuring U.S. Forces After the Cold War: Costs and Effects of Increased Reliance on the Reserves*, Congressional Budget Office, September 1992, p. 80.

²³International Institute for Strategic Studies (IISS), *The Military Balance 1989-990*, Brassey's, London, 1989, p. 243; *Army Reserve Forces: Applying Features of Other Countries' Reserves Could Provide Benefits*, General Accounting Office, August 1991, p. 21.

Reserves are organized into three categories: ready, alert, and replacement. The ready category consists of personnel who were on active duty the previous year. They are in the ready category for only a year, have specific mobilization assignments, and train approximately two weeks during that year. The alert category consists of those who were not selected for the ready category and those who left active service between one and six years earlier. Members have three two-week training periods during their five years in this category. These personnel also have mobilization assignments. Reservists move into the replacement category after five years. Replacement reserves have no predetermined mobilization assignments but may be called up until age 45 for enlisted personnel and age 60 for officers and NCOs.²⁴

²⁴Anthony H. Cordesman, *NATO's Central Region Forces*, Janes, London, 1988, pp. 97-98.

Appendix B

Details of the Political/Military Game

The game was held in the RAND Washington office September 15–17, 1992. Principal participants in the game were four retired three- and four-star officers, one from each of the military services. They played the Joint Chiefs of Staff in the game. In addition, representatives of each FFRDC participating in the study were on hand, as well as observers from OSD and the Joint Staff.

The game consisted of three rounds in which the principals played the Joint Chiefs of Staff. The three rounds were: a warfighting round, a force planning round, and budget cutting round. The first round used the Base Force as envisioned in the MRC-East. Options were derived from the Defense Planning Guidance and presented to the players, along with guidance that required them to hedge their response against a possible second contingency. They were specifically asked to address what forces to deploy to the theater, the extent and timing of reserve component call-ups, and whether they felt that our estimates of requirements and training times were realistic.

After considerable deliberations, the players presented their recommendations to one of our senior analysts portraying the president. Issues discussed included the likelihood of a favorable outcome of the current contingency, perceptual issues regarding mobilizing reserve component ground combat units, but preparing them for a second contingency rather than employing them in the current one, and the risks which would ensue in delaying decisive engagement in the current conflict to allow for participation of reserve component ground combat units.

During the second round, the game time was moved back to 1992 to address alternatives to the Base Force. We presented several possible forces, including the Base Force to the players. The players were asked to evaluate the military advantages and disadvantages of each. The format was again an internal discussion among the players followed by a meeting with the president. The participants overwhelmingly preferred the Base Force to any alternatives, but the discussions revealed many perspectives on the options presented.

In the final round, the game time was moved to 1994, and the participants were asked to accommodate a 15 percent cut in the budget for combat forces. Following the prior format, the participants discussed options for taking the cuts and again met with the game president to present their recommendations. Following this discussion, the game was terminated, and the final half-day was devoted to a general discussion of the issues raised, the adequacy of the scenarios for force planning, and our approach to the final report on the project. Their conclusions are presented in Chapter 6.

In Chapter 6, we presented one major result of the game—it contradicted our hypothesis about delaying deployment of the crisis response force while reserve combat forces trained up. However, the game led the players to other conclusions, four of which we describe below. First, they emphasized the importance of distinguishing between reserve combat units and service/support troops. They saw call-up and employment of the latter as absolutely essential to fight even a single MRC and stressed the substantial contribution that support units made in the Persian Gulf conflict. They viewed as unacceptable any delay in prosecuting a future conflict to insure the participation of reserve combat units. This view is not consistent with that held by some members of Congress, which stresses the need to involve reserve combat units in any MRC.

Second, the players emphasized the importance of an early mobilization of reserve combat forces to hedge against (1) a second MRC emerging and/or (2) the possibility that the first contingency will prove more stressful or protracted than expected. They stress the importance of having fully trained military forces available for a second contingency to deter aggression, and if needed, to fight and win.

Third, they strongly believed that it would always be impractical to deploy brigade- or division-sized reserve combat forces. The rationale was that the 40-or-so days of training that a reservist gets every year are not enough to develop or maintain large-unit proficiencies. Further, the training time necessary to prepare higher level units tends to increase exponentially because many more elements must be managed at each level. Hence, the players suggested that some reserve combat units be integrated with active forces at the company or battalion level rather than at brigade, as is true today.

Fourth, the players commented on the considerable confusion that arises in considering the difference between the mobilization of reserve components and the actual call-up schedule resulting from that decision. Only a relatively small fraction would be ordered to report immediately upon the deci-

sion to mobilize, with the remainder called as needed over many months. For example, there is no need to actually call up a National Guard infantry division if there are no training facilities to accommodate it. The important issue is the very early authority to call the necessary units—mostly service and support troops, not combat soldiers—to execute the contingency plan.

Appendix C

Concepts for Reserve Roundout of Active Army Divisions

Purpose

This appendix provides background on the Army's roundout concept and describes two alternatives to it: battalion- and company-level roundout options.

Background on Reserve Roundout Brigades

The Army introduced the roundout brigade concept in 1975 as an organizational design to integrate active and reserve soldiers in a single unit to allow the Army to build up the number of active combat divisions from thirteen to sixteen without increasing active end-strength. The roundout concept was also a response to the legacy of the Vietnam War which the Army leadership decided should be precluded in the future through stronger dependence of the new All Volunteer Force on the activation of reserves. The roundout brigades were designed to enhance the close linkage of the active Army to the reserve components so as to increase the likelihood of mobilization in the event of war.¹

Current Roundout Brigade Organizations

The Army currently has three CONUS-based heavy divisions that are organized without one of the three doctrinal maneuver brigades, using a reserve component brigade to "round out" the division. This affiliation of active parent division and reserve roundout brigade is intended to sum to a full division with some minor number of additional spaces.² Figure C.1 is a

¹U.S. Congress, House, Committee on Armed Services, *Department of Defense Authorization for Appropriations for Fiscal Year 1976 and 1977*, Hearings, Part 2, 94th Cong., 1st sess., 1975, pp. 2087-2092.

²Roundout brigade headquarters are reserve general officer commands and are provided added staff for administration, planning, coordination, and command and control.

schematic depiction of the organization of a typical roundout brigade for a mechanized division with integral maneuver elements: two mechanized infantry and one armor battalions. The strength of the roundout brigade is about 4,000 personnel, and its primary fighting systems are 130 Bradley Fighting Vehicles (M-2 and M-3), 58 M-1 Abrams Tanks, and 24 M109 Self Propelled Howitzers.

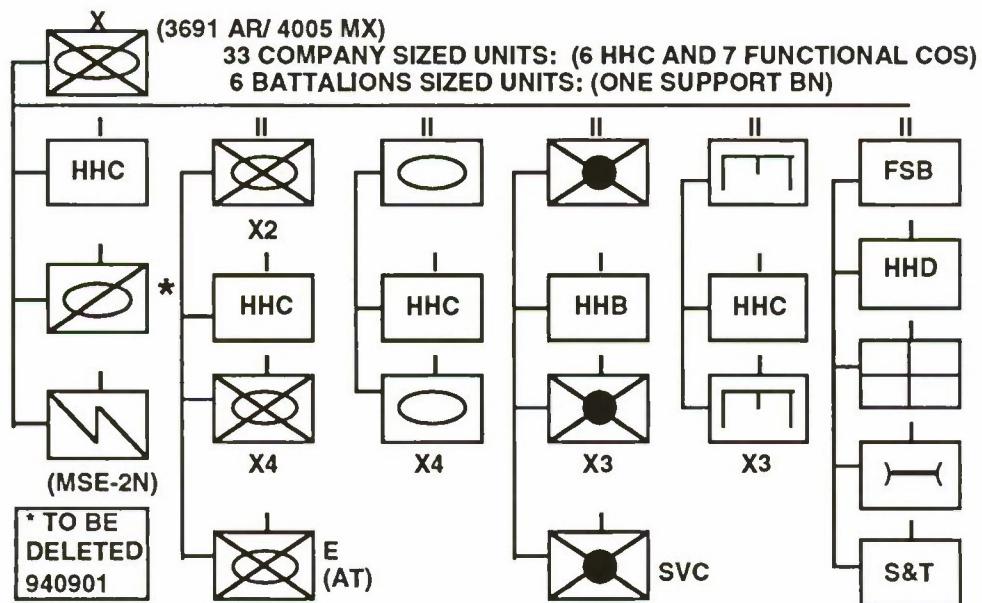


Figure C.1—Typical Organization of a Reserve Component Roundout: Mechanized Infantry Brigade

The active mechanized infantry division, which has been rounded out by a reserve brigade, contains reserve units as shown by the symbol ® in Figure C.2. This organization incorporates approved doctrinal designs, such as the Engineer Restructuring Initiative (ERI), that increase current divisional engineer assets from a single battalion to a three battalion brigade, which will exist in the FY 1995 Base Force divisional structure. Examination of this structure reveals that of the total required division strength of over 17,000, only about 13,000 is in the active force. Similarly, with the exception of the fully active aviation brigade and some of the division base battalions and companies (e.g., CEWI and air defense), about two-thirds of the primary fighting systems are in the active elements of the division and the remainder in the roundout brigade.

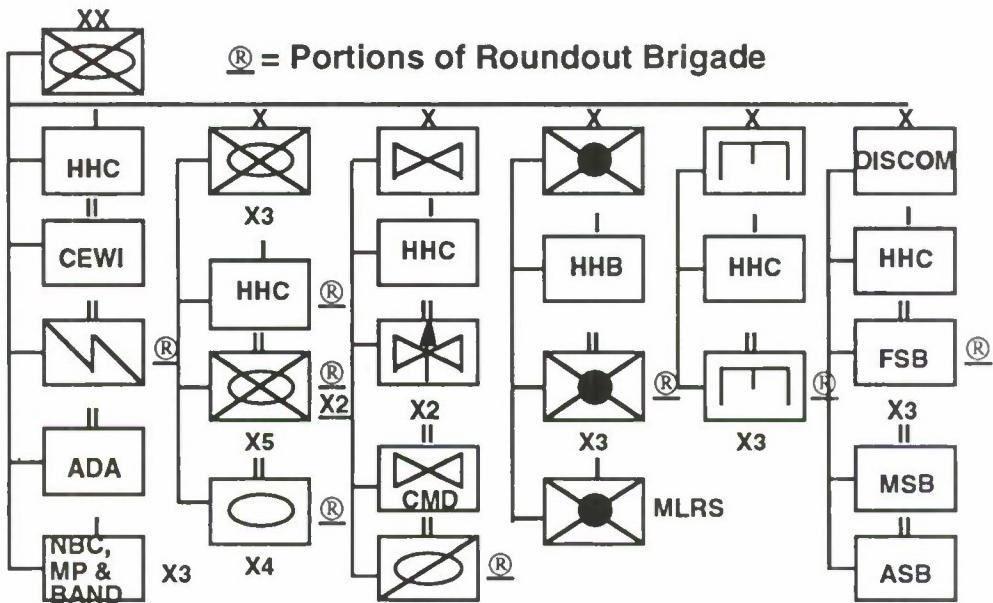
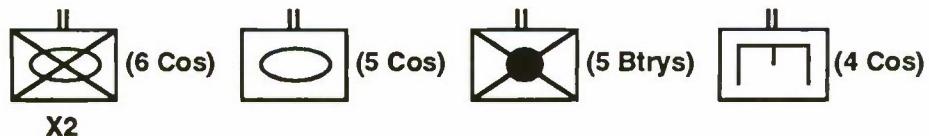


Figure C.2—Typical Organization of Mechanized Infantry Division with a Reserve Roundout Brigade

Roundout Concept at Battalion Level

The concept proposed for roundout at battalion level is a relatively simple organization derived directly from the existing roundout brigade structure. The active division assumes the brigade level of command and those functional and support units that should accompany the brigade tactical echelon. The reserve battalion sized units are shown in Figure C.3. The number of line battalions that were in the roundout brigade remains unchanged, and the count of reserve company-sized formations has been reduced to 26 companies and a strength of about 3,400 for a mechanized division roundout. This retains a majority of the roundout brigade structure spaces within the reserve for cost savings and also reduces the number and types of skills (MOS) that remain in the roundout organizational structure. The estimated cost increase for restructuring at battalion level of roundout for the current three division force is approximately \$72 million per year.³

³This RAND/LMI cost estimate is based upon increased active manpower (MPA) and operations and maintenance (OMA) costs using a cost difference factor of approximately \$40 million per 1,000 active spaces and providing rebate for appropriate numbers of reduced reserve spaces. No cost consideration has been given for equipment since it is required in the same amounts and level of modernization regardless of component of ownership.



- **5 Battalions with a total of 26 company sized units are proposed as the reserve roundout for an active mechanized division**
- **Command structure for these battalions is provided within the active division(eg., Maneuver Brigade, Division Artillery, etc.)**
- **Support and maintenance beyond organizational level is provided within the active division(eg., FSB)**
- **Complete functionality for active commands is retained within the active division(eg, Bde HHC, Signal Co, etc.)**

Figure C.3—Roundout Concept at Battalion Level

The major change comes in the active division as shown in Figure C.4. There are now three maneuver brigades to share the six active maneuver battalions and the three reserve roundout maneuver battalions, and this concept would organize the brigades so that each had two active and one reserve battalions (modeled on the current roundout experience of the division artillery). If the “tenth battalion” is retained as an added roundout battalion, then one brigade would be organized with two active and two reserve battalions. The division artillery and engineer brigade are unchanged in organization but now deal directly with their roundout battalions in the absence of a reserve brigade headquarters. The division support command (DISCOM), aviation brigade (cavalry squadron), and division base battalion (e.g., signal battalion) become fully active organizations as required to support the full complement of active brigades, and the functionality of the division remains complete. Active leadership is complete at the colonel level of command (brigade) and reduces or eliminates the complexity of synchronization of tactical functions that must be accomplished by the roundout units. The active mechanized division grows by some 600 personnel which provides more experience, leadership, and support in the parent unit to improve the support ratio to the smaller roundout structure.

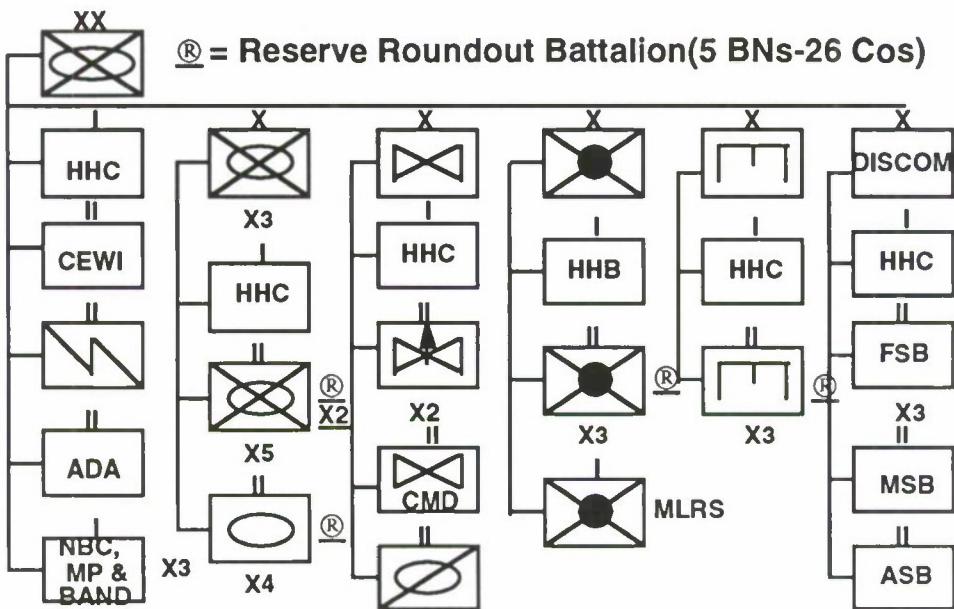


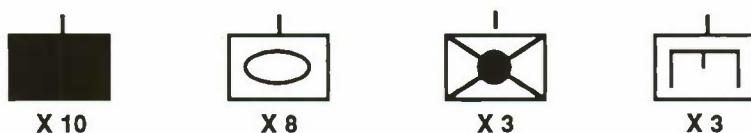
Figure C.4—Active Mechanized Division with Reserve Roundout Battalions

The battalion roundout structure is less complicated and smaller than the current roundout brigade. However, post-mobilization training for the maneuver elements still must include the peacetime training echelons (crew, squad, and platoon), the company team, and battalion task force. Training of field artillery and engineer battalions at battery/company and battalion is no less a challenge. All battalions include their own organizational maintenance capability and therefore retain the primary responsibility for maintenance of their equipment beyond the operator level.

Roundout Concept at Company Level

The proposed organization of a company level roundout is shown in Figure C.5. It is intended to retain force structure spaces of the roundout organization in the reserve while preserving the application of the roundout principles. Only line companies are used as roundouts. This simplifies training, reduces complexity, and reduces the numbers of skills that must be trained. Line companies have been designed to have a single primary weapons system (e.g., M1 Abrams Tank) and primarily the personnel with operator and supervisory skills required for tactical employment of this weapons system. The simplicity of the company compared to the battalion is illustrated in the number of skills (MOS) within each organization. As an example, a tank

company has only five skills (one officer and four enlisted) with over 90 percent in one MOS (19E armor crewman/sergeant) compared to a tank battalion with 42 skills (7 officer, 2 warrant officer, and 33 enlisted).⁴ The small size of line companies (e.g., 62 personnel in a tank company up to 119 personnel in a field artillery battery) versus 500 or more in most line battalions, allows a company's training focus to be almost entirely on crew, squad, and platoon gunnery and maneuver tasks which is in concert with the Bold Shift peacetime training initiatives.



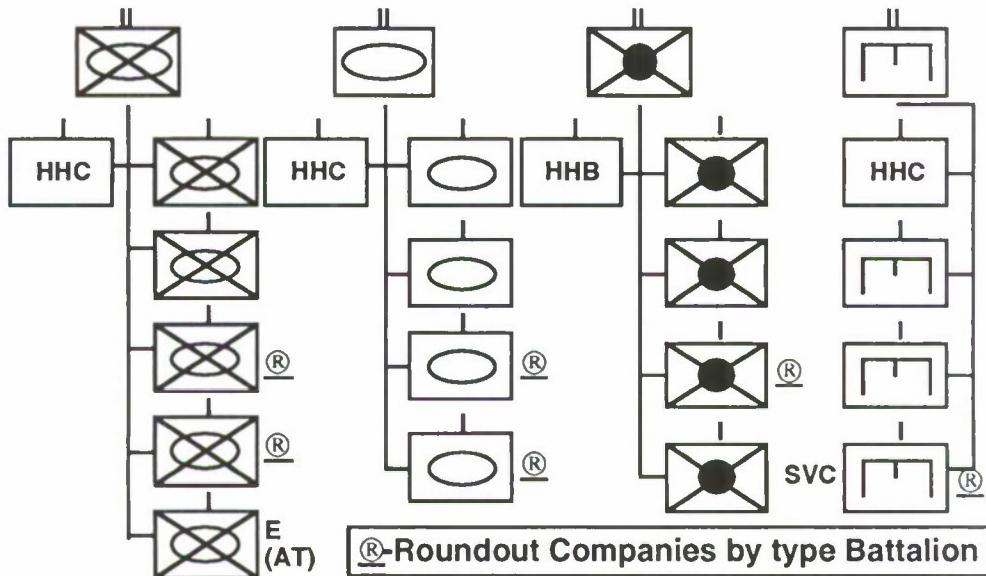
- **24 line companies are proposed as the reserve roundout for a mechanized division**
- **Command structure at battalion level is provided within the active structure of the division**
- **Support, administration and maintenance is provided within the active structure of the division(eg., Bn)**
- **Complete functionality for the active command echelon is retained within the division(eg., all line battalions are missing only a portion of their organic line companies)**

Figure C.5—Roundout Concept at the Company Level

The concept proposed treats each type of active line battalion in the division in an identical fashion as shown in Figure C.6. Mechanized and armor line battalions with four line companies would have two active and two reserve companies. Field artillery and engineer battalions with three line companies would have two active companies and one reserve company. This roundout structure provides for a total of 24 reserve roundout companies and about 2,300 reserve spaces in a small number of MOS in the division and links each company with an active battalion commander in a dedicated relation. The estimated increase in cost for operating at company level of roundout in the three current divisions is \$204 million per year over the cost of operations for

⁴Headquarters Department of the Army, Table of Organization and Equipment, TOE 17375L000, *Tank Battalion (Hvy Div)*, 1 April 1988.

the current brigade roundout.⁵ This is primarily the differential cost of an additional 5,100 active personnel that would have been reservists in roundout brigades.



**Figure C.6—Roundout Companies for Type Active Parent Battalions
(Mechanized Infantry, Armor, Field Artillery, and Engineer)**

Figure C.7 shows that the division, brigades, and battalions retain full functionality and support within and for their respective organizations, albeit that the battalions lack either one or two of their line companies in the active structure. Active command structure exists fully at battalion and all higher echelons which assures high levels of leadership, experience, and competence. The level of complexity for peacetime training and wartime tactical employment are now the responsibilities of the active component leadership. All maintenance activities above operator level now reside within the active organization which will provide the potential for eliminating the historic reserve roundout maintenance problems that detract from training in peacetime and after mobilization. The direct mentoring relationship of "master to apprentice" that exists for the active line company commanders is also established organizationally for the reserve roundout commanders. The active division has more leadership and support by an additional 1,100 personnel

⁵RAND/LMI cost estimates, *op. cit.*

and spaces over battalion level roundout while having the peacetime and post-mobilization training tasks focused only on company and below.

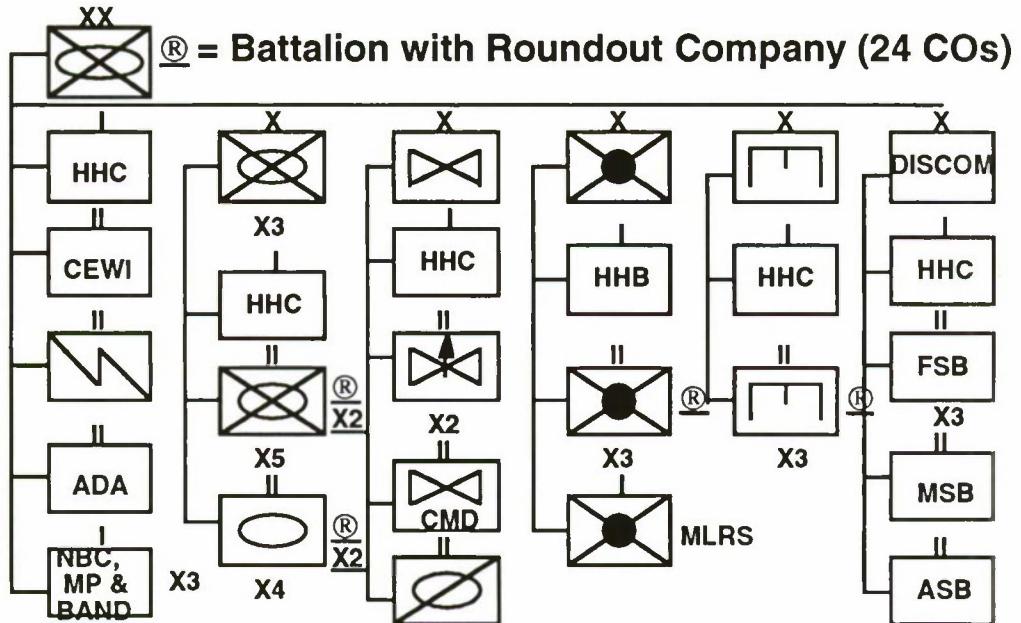


Figure C.7—Mechanized Division with Reserve Roundout Companies

Organizational Comparison of Roundout at Various Levels

Table C.1 summarizes the key differences of roundout at reserve brigade, battalion, and company organizational concepts as described previously. It points out the dramatic shift in resources (personnel spaces, leadership content, and support structure) from reserve to active as the echelon is lowered from brigade to company level roundout. As an example, of the 33 companies in a roundout brigade only 70 percent are line companies, whereas in the roundout company concept 100 percent are line companies reflecting a major change in the complexity of the former to the simplicity of the latter. The comparison of the number of active versus reserve spaces in each organizational concept helps to explain the increased costs of roundout at lower levels, and it highlights some of the obvious advantages and disadvantages of each.

Table C.1

Organizational Comparison of Various Levels of Roundout in an Army Mech Division*

DIVISIONAL COMPONENT	<u>AC AND RC COMPANIES(LINE/OTHER) PER ROUNDOUT ECHELON</u>					
	BRIGADE		BATTALION		COMPANY	
	AC	RC	AC	RC	AC	RC
DIVISION BASE	AII-1	1/0	AII	0/0	AII	0/0
MANEUVER BRIGADE(X3)	24/12	12/6	24/13	12/5	18/18	18/0
DIVISION ARTILLERY	6/7	3/2	6/7	3/2	6/9	3/0
AVIATION BRIGADE	AII-1	1/0	AII	0/0	AII	0/0
ENGINEER BRIGADE	6/3	3/1	6/3	3/1	6/4	3/0
DIVISION SUPPORT COMMAND	AII-4	3/1	AII	0/0	AII	0/0
TOTAL	N/A	23/10	N/A	18/8	N/A	24/0
APPROX. STRENGTH(AC/RC)	13.0K/4.0K		13.6K/3.4K		14.7K/2.3K	
ADDED COST/YR FROM BDE R/O	BASE COST		+\$24M/DIV		+\$68M/DIV	

* ASSUMES 17.0K MECHANIZED DIVISION

Appendix D

Initial Training and Non-Deployable Personnel Account

Reserve units may appear to be fully manned but actually be short of deployable personnel because of failure to account for Selected Reserve personnel who are not available for unit missions. The active forces maintain centralized "individuals" accounts to program and account for trainees, transients, holdees, students, and others who are not available to fill operational billets. (The Army calls its individuals account the TTHS account.) Until recently, there was no provision in law to establish such an account for the Selected Reserve.

In 1986 and 1987, the Assistant Secretary of Defense for Reserve Affairs issued policy memos to establish programming and accounting procedures in the reserve components to differentiate between trained and non-deployable strengths. However, the April 1990 Logistics Management Institute report, "Programming and Accounting for Nonunit Manpower," found there were still major differences in programming and accounting procedures between active and reserve components and among reserve components. These differences distort data comparisons and program evaluation within DoD and in the Manpower Requirements Report submitted to Congress annually to support the DoD budget. These differences also provide misleading data on how much trained manpower is available for deployment in emergencies.¹

A recent congressional action to account for non-deployable personnel may lead to the provision of additional deployable personnel to Army reserve component units. Section 1115 of the National Defense Authorization Act for Fiscal Year 1993 attempts to rectify the problem for the Army National Guard by establishing an "initial training and nondeployable personnel account" for

¹The Logistics Management Institute is currently undertaking a task for the Office of the Assistant Secretary of Defense for Reserve Affairs to evaluate various approaches and to recommend changes in the procedures used to program and account for reserve component manpower.

the Guard.² Members included in this account are not to be assigned to fill Guard unit positions.³ Thus, establishment of this new account will identify positions in Army National Guard units which could be filled with additional deployable personnel.⁴

The new personnel account will increase the visibility of shortages of deployable personnel but will not, in itself, eliminate the shortages. Eliminating personnel shortages requires that both the account and unit personnel authorizations be fully funded. Three of the alternatives presented in Chapter 8—"i," "j," and "k"—provide the funding for this additional personnel strength to the Army National Guard and Army Reserve.⁵ The remaining four alternative force structures were developed outside this study and did not include funding and manning for this new personnel account.

²House of Representatives, *National Defense Authorization Act for Fiscal Year 1993, op. cit.*, pp. 232–233. The portion of the authorization act in which this section appears is also known as the *Army National Guard Combat Readiness Reform Act of 1992*.

³Section 1115 also requires that members who have not completed the minimum training required for deployment within twenty-four months must be discharged from the National Guard.

⁴OSD also has an initiative that will open up positions in the Army Reserve. OSD is extending to the Army Reserve an option for categorizing personnel currently used by the Marine Corps Reserve. Newly enlisted Marine Corps Reserve personnel who have not been through basic training are assigned to the Individual Ready Reserve (IRR) and are not authorized to drill with a unit. Placing these untrained personnel in the IRR performs a similar, albeit more limited, function to the new personnel account discussed above. OSD, in addition to approving continuation of this practice in the Marine Corps Reserve, has recommended that the Army Reserve adopt the same practice.

⁵Although the new account is limited to the Army National Guard, we provided additional manning to the Army Reserve as if it also had an initial training and non-deployable personnel account.

Appendix E

Concept for Trainer Commands to Train Reserve Roundup Brigades

A considerable portion of the research and analysis conducted in support of this study has focused on the needs of post-mobilization training. This appendix reviews some current proposed approaches for reserve component training and provides a notional concept to address these issues. The concept suggested here draws on the strengths of many of the ideas being considered by FORSCOM and the analysis of ODS/S, and it suggests a composite solution to the training of reserve combat units. The organization is called a "trainer command" to highlight both its primary purpose and the fact that the proposal calls for the unit to be commanded by an active duty general officer to show commitment to the mission of reserve training, ensure competence in the level of that training, and signal credible training capability.

We found that, aside from the cadre at NTC and JRTC, *ad hoc* plans and units were the only source available in the FY 1995 Base Force to train reserve combat brigades after mobilization, a situation that would inevitably create a "bottleneck" in the process of generating deployable combat forces after active divisions had departed for the theater. In other words, future force generation requirements are likely to exceed the supply of active units available for post-mobilization training of the reserve combat brigades. Analysis of the ODS/S experience shows that in one case about 2,800 active duty soldiers were supporting the training of a single reserve roundout brigade.¹ The size of this commitment suggests that dedicated training assets must be provided for post-mobilization training of reserve combat brigades to validate them for deployment rather than depending on the *ad hoc* approach used in ODS/S. These assets may be the same used in peacetime to perform other training functions. Many discussions with active and retired senior Army leaders indicate these training assets must be active organizations competent in training methods and current doctrine.

¹Department of the Army Inspector General, *Special Assessment of National Guard Brigades' Mobilization, June 1991*, p. 2-4.

Current Considerations for Organizations to Perform Reserve Component Training

In the FY 1992 and 1993 National Defense Authorization, Congress focused on a pilot program that provided for active peacetime support for organizing, administering, recruiting, instructing, and training of early-deploying, high-priority reserve units. It directed the Army to increase the allocation of active duty advisors supporting the specified reserve units on a full-time basis by an additional 3,000 raising the number of active soldiers committed to that purpose by the end of FY 1994 to a total of some 5,000.² This direction signals a continuing commitment from the Congress to improved training and readiness status within the reserve components. Conference language accompanying the Authorization Bill for FY 1993 also placed increased responsibility for the reserves, and specifically roundout type units, squarely on the Secretary of the Army and the active military.³

FORSCOM has been considering concepts that would provide a way to satisfy this congressional direction. One is called "Reserve Training Detachment" (RTD), which parallels the U.S. Marine Corps use of active duty Inspector and Instructor (I&I) personnel assigned in five to seven person teams at all echelons from company to brigade. These teams plan, evaluate, and support training of reserve components.⁴

A second concept, developed by FORSCOM in concert with U.S. Army Reserve Command, calls for the creation of five Army Reserve Divisions (Exercise). Under this plan, the critical training, exercise, and training simulation support for reserve component units would consolidate into one type of organization on a regional basis.⁵ The unit would train reserve component combat, combat support, and combat service support (CA, CS, CSS) units in peacetime. The smallest combat unit in the Reserve Division (Exercise) would be the platoon, and it would train CS/CSS units no lower than company/battery level. Additionally, the division would provide simulation and CPX support to train leaders and staff members through brigade levels. After mobilization the division (Exercise) would have the mission of

²U.S. Congress, House, Report of the Committee on Armed Services House of Representatives, National Defense Authorization Act for Fiscal Year 1993, 102d Congress, 2d sess., May 19, 1992, pp. 417-418.

³U.S. Congress, House, Conference Report, *National Defense Authorization Act for Fiscal Year 1993*, 102d Cong., 2d sess., October 1, 1992, pp. 231-236.

⁴RAND discussions with staff officers at Headquarters, FORSCOM.

⁵Headquarters Forces Command Memorandum, SUBJECT: *Amended Concept Plan for the Division (Exercise)*, FCJ3-TR, undated.

providing dedicated training assets to assist the mobilization station commander in validating mobilized reserve component units for deployment.⁶

Reserve Roundup Brigade Trainer Commands

The trainer command, discussed initially in force structure Alternative "i," provides another way to satisfy the congressional direction. It supplies the organization, personnel, and equipment (both unit and simulations), and assumes responsibility for the planning, conduct, and evaluation of training for reserve combat maneuver brigades in peacetime and during post-mobilization (roundup brigades being first priority and then maneuver brigades of National Guard divisions as mobilized). It provides a basis for additional force generation either by training of other National Guard combat brigades or divisions, deploying its organic combat brigade, or by providing the nucleus to form an active heavy combat division in a reconstitution effort. It is responsible for the readiness and training of its organic combat elements and maintains a competent set of Observer/Controllers (O/Cs), I&Is for two or more roundup brigades, and an OPFOR of battalion task force size, which can expand to a brigade upon mobilization. It provides units, personnel, and simulations to conduct exercises, demonstrations, CPXs, TEWTs, and limited scale FTXs to support training of crews, small units (platoon and company), staffs, and commanders in peacetime and training and validation for deployment through combat maneuver brigade after mobilization.

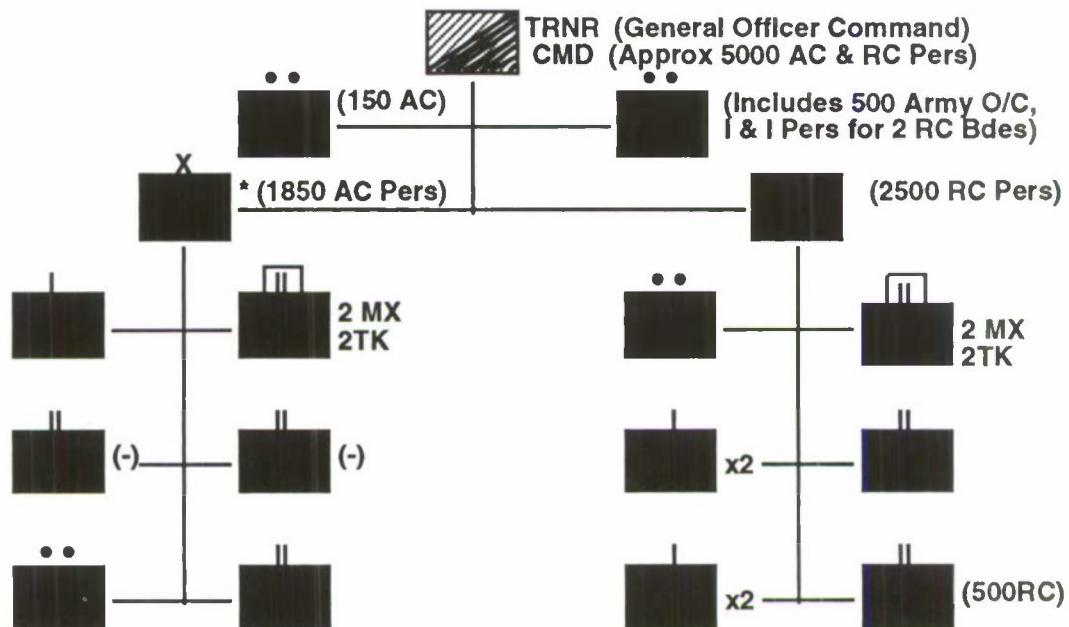
Organizational Concept

The commander of the trainer command would perform the responsibilities mandated by Congress in Title XI (Army National Guard Combat Reform Initiatives) of the 1993 National Defense Authorization and be responsible for training validation during post-mobilization of assigned reserve roundup brigades.⁷ Figure E.1 illustrates a notional structure for this organization. The strength is approximately 5,000 personnel equally split between active and reserve personnel, and it could be varied depending on the number of reserve roundup brigades supported. The organization shown would support the training of two roundup brigades in peacetime and, upon mobilization, would perform post-mobilization and validation of these same units and other follow-on combat formations as required. The trainer command would be regionally focused and based on an active installation that would

⁶Ibid.

⁷U.S. Congress, National Defense Authorization Act, *op. cit.*, pp. 231–236.

contain required training facilities needed for post-mobilization training of the supported reserve combat brigades.



* Active Brigade Structure Similar to 194th Armored Bde to Provide OPFOR Elel.

Figure E.1—Notional Structure of the Trainer Command

The organization is divided into a mechanized brigade of about 1,800 personnel and a reserve element of approximately 2,500 reserve personnel. Two headquarters sections provide supervisory, administrative, and training support. The key sub-elements of the trainer command are:

- Command headquarters detachment,
- Command trainer detachment,
- Mechanized infantry brigade (rounded out with reserve units similar to the 194th Armored Brigade stationed at Fort Knox, KY),
- Reserve training support battalion, and
- Civilian support detachment.

The command headquarters detachment provides the commander and staff to plan, coordinate, and evaluate the training of the assigned reserve roundup brigades and oversee the readiness and training of organic units.

The command trainer detachment provides teams of I&Is or RTDs for the company/battery level and higher echelons of two reserve roundup brigades and some additional officers and NCOs to perform O/C duties for company team and higher-level maneuver training exercises. These active officer and NCO personnel provide the full-time capability for planning, executing, and evaluating IDT and AT training for their respective associated reserve units and the expertise for transition to post-mobilization training.

In peacetime the mechanized infantry brigade provides maneuver, exercise, and demonstration combined arms units at company team and battalion task force level and the required player units to support simulations, CPXs, TEWTs, and small-scale demonstration FTXs for training reserve staffs and commanders within the roundup brigades. Upon mobilization, the brigade provides the OPFOR and training support necessary to perform NTC-like training and support to the reserve roundup brigades to prepare them for validation and deployment. The active brigade with its reserve roundout subsequently provides the nucleus for the trainer command to function either as the trainer organization for a National Guard Division or the core of an active division during reconstitution. Alternatively, the trainer command could, upon completion of training assigned roundup brigades, train and deploy its organic combat brigade to meet more pressing demands in time of a crisis.

The reserve training support battalion is organized to support simulation training in peacetime and to augment the command headquarters and O/Cs upon mobilization in the operation of live-fire ranges and maneuver exercises which support the training for the roundup brigades.

The civilian support detachment is an augmentation that provides continuity of support for both peacetime and post-mobilization training with primary functions being range safety and maintenance. This detachment would be sized based upon the installation staff and facilities available for the conduct of the training command's functions, but it would be responsible to the training command to ensure a high level of responsiveness to the training mission.

The Utility of Trainer Commands

The trainer command would provide a clearly visible organization that demonstrates a credible capability to generate significant combat forces from the reserve components in response to crises that exceed the capability of the active elements of the FY 1995 Base Force. With some additional investment

in firing ranges and infrastructure improvements, it appears feasible to support trainer commands on four or five major Army posts: Fort Hood, TX; Fort Carson, CO; Fort Bliss, TX; Fort Lewis, WA (Yakima Firing Range); and possibly Fort Stewart, GA; in addition to the existing capabilities at NTC (Fort Irwin, CA) and future light force capabilities at JRTC (Fort Polk, LA). The trainer command also provides a demonstrable commitment of active duty personnel (some 2,500 per trainer command) in response to congressional direction to provide full-time active support to this mission rather than relying on *ad hoc* solutions to train reserve combat maneuver brigades. As discussed in force structure Alternatives "i" and "k," the force structure assets provided to support five trainer commands would eliminate the post-mobilization "bottleneck," and those trainer assets could produce an additional five reserve combat maneuver brigades for deployment at about 130 days after mobilization and repeat this cycle every two months. Lastly, the trainer command provides a solid investment of both active and reserve personnel to bolster the fourth pillar of the National Military Strategy, namely reconstitution, which would add needed credibility. This notional concept is intended to suggest an organizational structure, the commitment of personnel and other assets and those essential functions that could ensure a much more capable ground component in a smaller future military establishment.

Appendix F

Associate Unit Concept for Selected Army Support Units

Background

The Air Force extensively uses the associate unit concept in its Strategic Airlift (KC-10, C-141 and C-5) and MEDEVAC (C-9) forces. Under this concept, an active duty parent unit is complemented by reserve air and ground crews to provide the capability to operate their primary equipment round-the-clock during a conflict. The reservists train as integral members of the active unit during normal peacetime training operations; an associate squadron provides unique reserve-oriented peacetime support for the reserve associate crews.

The Army has no analogous relationship between its reserve component and its active forces, but this organizational relationship offers several advantages that might argue for its adoption for selected units. Among these advantages is the high level of integration that the concept entails. Because they train as integral members of the parent active unit, commanders, schedulers, and other supervisory personnel know each individual's capabilities and training level. This knowledge allows tailoring of training and wartime tasks to each individual's capabilities and limitations.

Another advantage is the rapidity with which the augmenting associate personnel can deploy to theater. Since the active unit deploys with the equipment for both components, the associate personnel have no post-mobilization delays due to equipment preparation or shipping. This allows them to join their active parent unit and augment its operations more quickly than a stand-alone reserve unit could deploy to theater and begin its own operations.

Objectives and Use of Army Associate Units

The objective of using associate units is to increase combat capability by leveraging high technology combat systems which may be crew constrained and by augmenting support functions that may not be able to reach or to

continue indefinitely at full round-the-clock capacity because of the limited manpower. This leveraging and augmentation of active component combat support (CS) and combat service support (CSS) may be particularly important during the initial buildup of forces in a contingency theater because of the heavy demands that fall on a limited number of active component support units in the initial forces arriving in theater.

Criteria for Army Associate Units

The criteria for selecting units for this type of augmentation are multifold:

- The primary system (aircraft, vehicle, or electronics suite) the unit operates must be capable of effectively operating round-the-clock. The AH-64 Apache probably provides the best example for fighting systems; for support units, aviation maintenance might be a good example.
- This round-the-clock capability must be needed. The need for combat systems with the potential to affect the battle decisively round-the-clock is nearly universal under the Army's current fighting concepts. The need for support capabilities depends on the nature of the support operation because some are driven by the tempo of battle while others are determined by the size of the force.
- An operating environment which supports crew replacement (as for flying units) or shift replacement (as is often possible for aviation intermediate maintenance operations) best matches the use of associate personnel to augment active units.
- Units whose mission relies relatively more on individual skills rather than unit skills (such as flying units) are more appropriate for the associate concept. Such units have less need for post-mobilization unit-level training.
- Units that have been structured with low crew ratios for historical reasons or to keep peacetime operating costs at reasonable levels stand to benefit the most from the concept.
- Since few reserve personnel are located overseas in peacetime, the associate unit concept can be applied only to units located within the Continental United States (CONUS).

Applying these criteria to the units within the Army to select candidates for associate augmentation is a judgmental process. Some types of units strongly match one or the other of the criteria, others modestly match several. Maneuver units appear to be poor candidates on several accounts (need

for unit-level post mobilization training, operational environment that is not conducive to crew, or shift replacement). Aviation units appear to match the profile well.

In the next subsection, we report on the numbers and types of positions we determined to be appropriate candidates for this concept within the Army.

Candidate Units

A Broad Application of the Criteria

In order to understand the potential for using the associate concept to improve Army combat and support capabilities, we first broadly applied the criteria outlined above to identify a wide range of candidate units. We then narrowed the focus to only those which clearly met the profile defined by the criteria. In the first instance, we identified approximately active units that could benefit from associate augmentation. These units were largely in aviation and artillery and included selected CSS units as well. We augmented the active units with manpower (but not equipment) similar to that of a reserve unit of like type, if one existed, or similar to an active unit, if such reserve units did not. Filling these associate units would require addition of approximately 60,000 reservists to the force structure.

Stringent Application of the Criteria

Limiting the units for associate augmentation to a stricter application of the criteria outlined above resulted in a focus on aviation and those artillery units that employ the Multiple Launch Rocket System (MLRS). Providing associate augmentation for the units we identified with this more stringent application of the criteria would require only 25,000 additional reservists in the force structure, but no CSS units would be augmented.

Use of Associate Units in Army Alternative Force Structures

In designing force structure alternatives, we used the broad criteria to enhance the combat and support capabilities of the early deploying active component CS and CSS units in those alternatives where the design goal permitted the latitude. Table E.1 below summarizes the use of associate units to augment the different branches in the three alternatives which rely on this concept.

Table F.1
**ASSOCIATE UNIT MANNING IN ARMY FORCE STRUCTURE
ALTERNATIVES**

Branch	Option		
	"i"	"j"	"k"
Aviation	16,711	16,711	16,077
Chemical	962	962	962
Field Artillery	23,819	23,976	22,453
Medical	767	767	767
Ordnance	8,640	8,640	8,640
Quartermaster	174	174	174
Signal	3,946	3,946	3,946
Transportation	5,737	5,737	5,737
Total	60,756	60,913	58,756

Using this concept was particularly important in these alternatives because they also included a shift of support positions from the active component to the reserve component. Such a shift places great demands on the early deploying, active component support units in situations where reserve call-up has been delayed. Because of the rapid deployment times of the augmenting associate personnel, they are among the first reservists to arrive in theater to provide increased support capability.

Appendix G

Design and Cost of New Air Force Associate Units

The associate unit concept is used in Alternative "y" not only for airlift forces but also for bombers, fighters, and tankers and to augment capabilities of C3I units. As shown in Figure G.1 the concept is used in two different ways: First, to reduce costs with only modest losses in capabilities (the active/associate model), and second, to increase air and ground crew ratios for battle decisive systems with round-the-clock capabilities (the active + associate model). In the first—involving tankers, bombers, and both air-to-air and multi-role fighters—reserve crews replace some portion of the active crews in a typical unit. In the second—involving interdiction and C3I aircraft—reserve crews are added to an existing active unit's resource. The first is necessary to provide budget "head room" for the latter and other force structure increases.

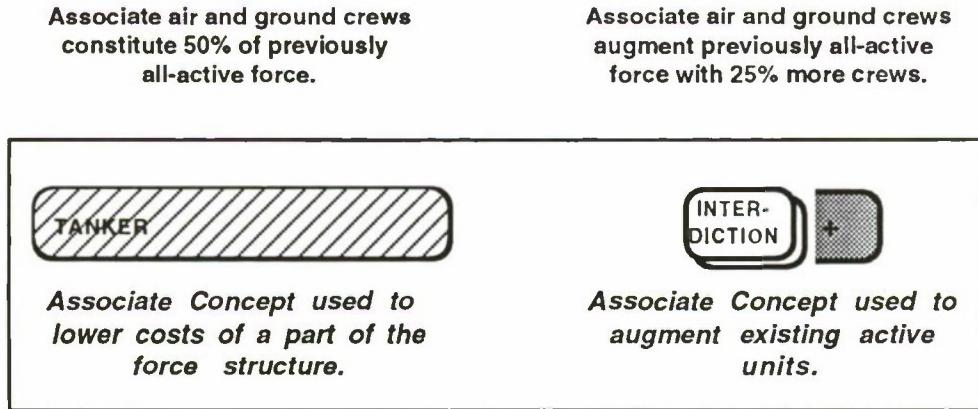


Figure G.1—Two Uses of the Associate Concept

Using the associate concept in these ways requires designing (and then estimating the costs of) new *types* of associate units. Although the costing calculations themselves use conventional methodologies, those calculations require us to estimate manning, equipment, and operational tempo for entirely new kinds of units.

The first type of associate unit is unlikely to involve potential economies of scale, since crews are substituted for rather than added to existing active squadrons. This means that, while the responsiveness and level of integration of these reserve crews is likely to surpass stand-alone reserve units, the cost savings are probably no greater than for shifting the same portion of the units to reserve status. Because of different programming practices in active and reserve organizations, we can only estimate a range of manning levels (and costs) that might apply to these new units. While air crews and military maintenance personnel are the same for both high and low estimates, the low estimate added technicians until the maintenance personnel per flying hour (FTE/FH) equaled stand-alone active levels. The high estimate reflected the FTE/FH rate found in reserve units.¹ The low estimate also assumed that reserve personnel would fill wing and base staff, security, and base support positions as in a stand-alone reserve unit; the high estimate assumed corresponding active manning. Our force structure calculations reflect an average of the high and low estimates.

The second type of associate unit augments an existing active unit's air and ground crews. The design calls for the associate crews to increase the overall crew ratio by 25 percent (augmenting the existing active crews), and we assume that flying hours per reserve crew will be 65 percent of the active level.² Overall unit manning requirements, however, are uncertain. Using data from the Air Force for C-141s and C-5s, Figure G.2 shows that current associate units use considerably less manpower per crew than stand-alone reserve or active units do.

This may reveal economies of scale. Indeed, Air Force Regulation 173-13 (cost analysis) and data for the Air Force's SABLE cost model seem to support this view.³ It is possible, however, that the seemingly less efficient active units could actually be bearing the burden of supplemental manning that is used to support associate units. Additionally, even if such economies of scale apply to airlift units, they might not extend to the tankers, fighters, and bombers considered in Alternative "y." Recognizing this uncertainty, we created two cost estimates, one reflecting the apparent economies, the other matching associate manning to stand-alone reserve manning.⁴ We

¹For this type of associate unit we assumed reserve and active crews would fly at the same rate as corresponding crews in existing stand-alone reserve and active units.

²We used the relationship between the flying hour programs in active and reserve F-16 units to estimate the level of operations.

³For a more detailed explanation of associate unit design and cost estimates see the companion publication, Palmer et al. (1992).

⁴Our design for reserve interdiction units is based on F-16 active and reserve units.

used cost estimates midway between the two in our force structure calculations.

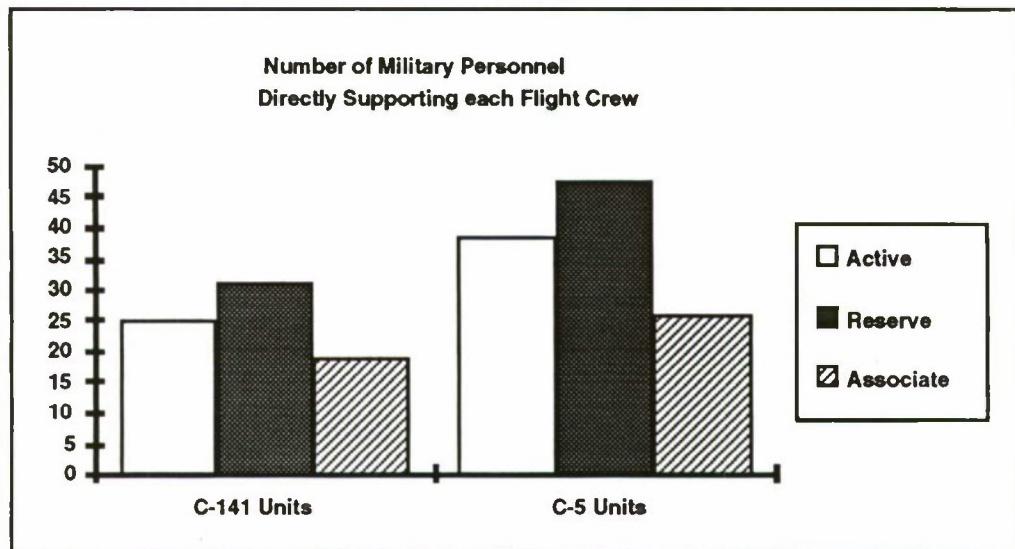


Figure G.2—Comparison of Manning Levels in Active, Associate, and Reserve Units

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